
CHEMICAL INDUSTRIES

FORMERLY KNOWN AS "CHEMICAL MARKETS"

VOLUME XXXVII

AUGUST, 1935

NUMBER 2

Contents for August, 1935

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Diogenes in Half a Barrel..... *By Howard W. Elkinton* 127

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CHEMICAL INDUSTRIES is indexed regularly in the INDUSTRIAL ARTS INDEX

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CHEMICAL INDUSTRIES is published monthly by Chemical Markets, Inc. WILLIAMS HAYNES, *President*; H. H. ADAMS, *Vice-President*; WILLIAM F. GEORGE, *Secretary-Treasurer*.

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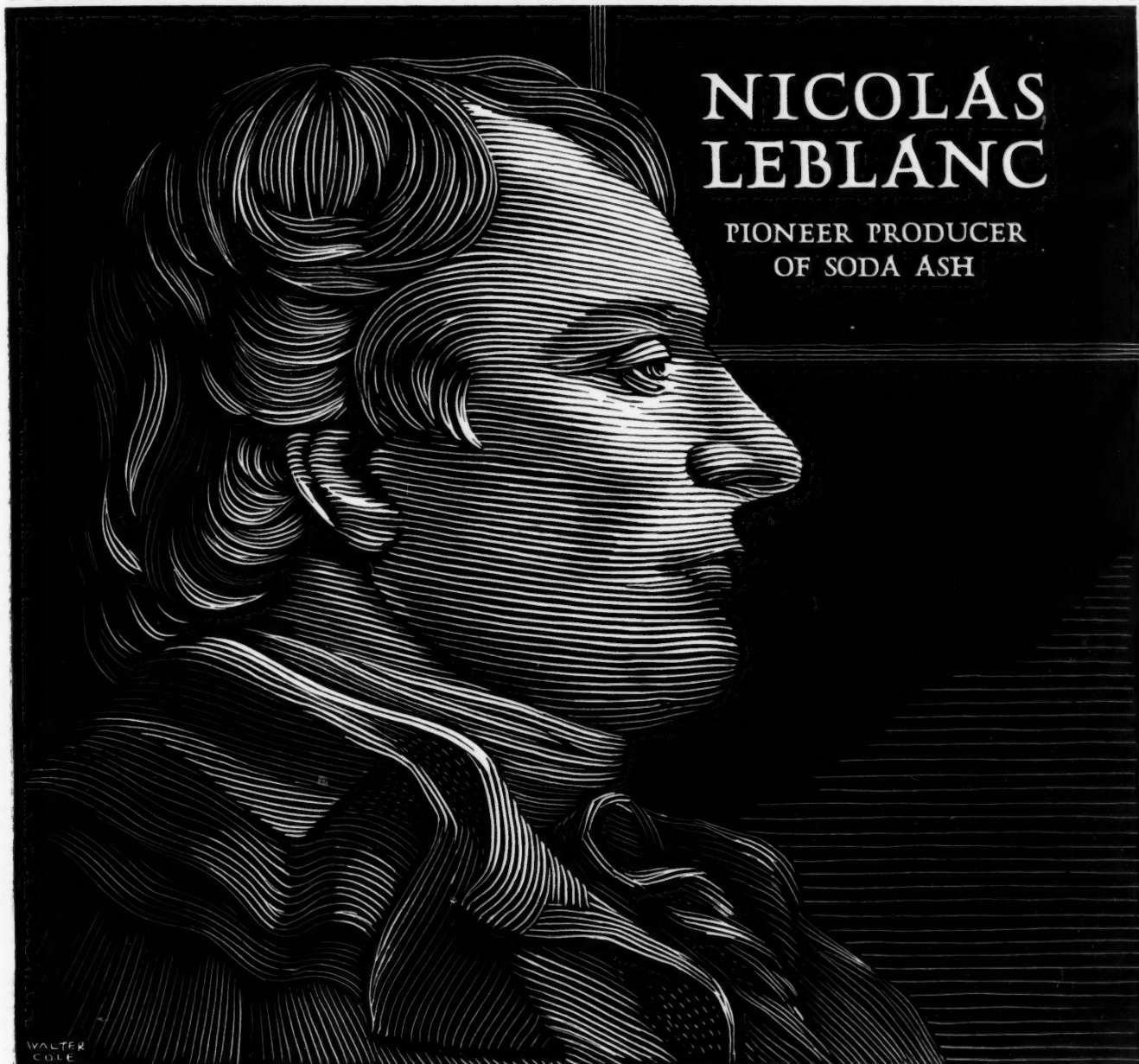
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In 1791, Nicolas Leblanc won the prize of 2,400 livres offered by l'Academie des Sciences de Paris for his process for making soda ash from salt. He never received the prize money, however. During the French Revolution, Leblanc's patents were voided and his plant wrecked by a mob. In dire poverty, in 1806, he ended his life by suicide.

WHEN Nicolas Leblanc built his soda works at St. Denis, France, nearly a century and a half ago, he established himself as the pioneer manufacturer of soda ash. Although his process was never used in the American alkali industry, it was not until 1895 that production of soda ash by the now universal ammonia-soda process exceeded production by the old Leblanc process. Mathieson, another pioneer producer of soda ash, starting operations at that same time forty years ago, has been in continuous production ever since. Mathieson Soda Ash has long been accepted by the chemical consuming industries as the standard of high, uniform quality.

The MATHIESON ALKALI WORKS (Inc.), 60 East 42nd St., New York, N.Y.

SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . BLEACHING POWDER . . . HTH AND HTH-15 . . .

Mathieson Chemicals

AMMONIA, ANHYDROUS AND AQUA . . . PH-PLUS (FUSED ALKALI) . . . SOLID CARBON DIOXIDE . . . CCH (INDUSTRIAL HYPOCHLORITE)

The Reader Writes:—

Sentiment in Business

I like your biographical articles. To record the activities of the men who have really made the chemical industry is not only a gracious act but shows that there is also an understanding heart.

New York City

W. P. COHOE

One Editor to Another

Without exception your Tercentenary issue is the finest copy of any business journal that has ever come to my desk.

No. Grafton, Mass.

CHARLES M. PROCTOR, Editor
"Leather Manufacturer"

The Honors Are Even

Unlike the majority of men whom you have helped and who did not even acknowledge their appreciation, but like the one with the wine, I do want to thank you for the kindly comments about myself, my organization, my 20th Anniversary number of "Retorts," etc., as incorporated in your page "We—Editorially Speaking." I want you to know that I appreciate it very much. On my literary efforts, knowing full well the hard-boiled attitude of the editorial pencil, tribute from you is tribute, indeed.

Rolls Chemical Co.,
Buffalo, N. Y.

H. J. ROLLS,
General Manager

The Patent Racket

Nelson Littell's article on "Playing Poker With Patents" in your July issue is one of the most interesting and constructive that you have published in a long time. It ought to be widely and carefully read. It is certainly high time that there was an exposé of the patent racket.

Boston, Mass.

ROBERT H. BARTLETT

Telling the Teachers

Among the editorials in *CHEMICAL INDUSTRIES*, July, 1935, is one that touches upon a subject I have given a great deal of thought to. As a "recent graduate" I have spent the first two years out of the university in a chemical plant unlearning a great deal that I spent a lot of time studying. My own teachers of chemistry at one of the oldest and best known universities in the East were certainly about five years behind the times on industrial practice; and the experience of other young men makes me feel that this is generally true throughout the colleges and universities of the country. I do not suppose that it is possible for the colleges to get the latest improvements and the inside "tricks of the trade" which are standard practice in all the chemical plants. This is private information, and the manufacturers themselves very naturally consider them a sort of trade secret, but there is no reason why the colleges should waste their time and hours teaching obsolete practice.

This waste of time is serious enough, but to my way of thinking I have been even more badly handicapped by having received from some of my college teachers a false sense of values, in that they impressed directly upon me the thought that industrial work was not only of a much lower grade than scientific work but also that it was selfish and degrading. These impractical and, I honestly believe now, unfair ideals are, I am again convinced from talking with my fellow workers, very commonly spread by chemistry teachers in the colleges and the

universities. I do not pretend to know whether they try to impress their students with the fineness of scientific research as compared with the poorness of plant work, but I know from my own personal experience that they make it even more difficult than necessary for a young man to fit himself into commercial life. As most chemistry students must pursue an industrial career, this is an actual dis-service.

I agree with you that the chemical industry ought to show the teachers of chemistry more of what they are doing, and also they ought to show them that the chemical industry is a decent career for any man.

Brooklyn, N. Y.

GEORGE ATWATER

As a teacher of chemistry I am interested in *CHEMICAL INDUSTRIES* for an account of many things which do not ordinarily appear in text books. It enables me to keep up with new developments and with new applications. My students like it too and often ask me whether the issue for the current month has arrived. Although your magazine is primarily intended for the industries I consider it decidedly worth while as a source of material which supplements that which we ordinarily use in the classroom. Another very satisfactory feature of my association with you is the promptness and the courtesy with which all my requests for material and information have been met.

Soldan High School,
St. Louis, Mo.

FRANK O. KRUEH

More Bunk

That three-hundred-year American Chemical Industry stuff was all the bunk!

Tell how we got a chemical industry and the part the men of the Chemical Foundation played in putting America into the war—and why.

That would make more honest reading.
Chicago, Ill.

HUGO HARTNACK

De-Bunking the Bunk

I enjoy a balanced mixed diet and for the same reason I like your publication, but articles like the Chemical Tourist appeal to me particularly. Your special Tercentenary issue presents a fascinating picture of the development of the American Chemical Industry and is a fine tribute to the pioneers whose vision and perseverance has been the foundation of this remarkable achievement. The article on "The Chemical Foundation" gives the whole story in clear and precise fashion and says exactly what's what and why. This prompts me to make a suggestion. I find that many people have a wrong conception of the origin, purpose and activities of the Chemical Foundation. I can conceive of no better way to set the general public straight on this subject than by giving your article wide distribution.

Mississippi Valley Research Labs.
St. Louis, Mo.

JULES BEBIE

Tough, but We Like It.

It must be tough job to collect so much interesting and useful material each month. Your editorials condemning the many fallacious Government schemes, are particularly interesting.

Cranston Chemical Works,
Mason, W. Va.

JOHN CRANSTON,
President.

CHEMICAL INDUSTRIES

VOLUME XXXVII



NUMBER 2

Competition vs. Recovery

ONE of the fuzzy thoughts of the N. R. A. clings like a burr to much wishful thinking about recovery. Upon the premise that unfair competition is an evil that must be eradicated before prosperity can be restored, it is still proposed that in partnership with Government, Business should practice self-regulation.

This proposal is full of contradictions and fallacies.

First, what are these unfair prices? If price maintenance is contrary to the best public interest, can price cutting be a crime? Reciprocity buying may be used as a club; but at just what point does legitimate influence become illegal force? In like manner, where does shrewd buying end and chiselling begin? It is admittedly fair that the buyer of a carload pay less per pound than the purchaser of a keg—what is a “fair” price then for twenty-five cars—or an ounce? Scrutinized thus, “unfair trade practices” often appear to be simply certain advantages which one group possesses and naturally uses, and which the loudest denounciators do not have, but would use if they could. The codes were full of examples of groups that were “in” trying to self-

regulate themselves into protected—even monopolistic—positions.

To dream of a partnership between Government and Business is at the least a confusion of terms, for partnership rests upon mutual trust and mutual interests. Both these requisites are impossible in a capitalistic economy under a democratic form of government. They existed under the Roman Caesars: they exist in Russia: they may exist under a Hitler: they are incompatible as oil and water in the United States.

Finally, no group of competitors, be they physicians or pie-bakers, makers of sulfuric acid by the ton or retailers of codeine sulfate by the ounce, can perform for themselves the quadruple duties of policemen, jury, judge, and jailer. These are the proper functions of the Government, not as a partner of Business, but as the custodian of the best interests and security of all the people.

The problems of competition are not paramount to recovery. What is illegal can be dealt with by the courts. What is unfair, only in that it is uncomfortable when used by a competitor or inexpedient for us to use, cannot be cured unless we choose to give up all economic freedom for economic security. Let us stop this wishful thinking about competition and go to work.

A Good Old Chinese Custom

The roundabout system of the Chinese physician who is engaged by the year to keep his patients well has much to commend it as the oldest and best kind of modern preventive medicine. It has also much to commend it also as a method of engaging the services of any professional consultant, and it is notable that a number of our leading consulting chemists and chemical engineers have been of late emphasizing the mutual advantages of this character upon the basis of an annual fee.

We have more than once pointed out that not the least important service rendered by the outside consultant is his disinterested point of view which makes it possible for him to check staff recommendations and staff work free from considerations of company politics. The analogy with the Chinese physician stresses a second, important aspect of his services which can be aptly illustrated by another medical example.

When his doctor ordered the baron in the play, "The Parisian Romance," to give up his wine and his women, the old roué broke forth "Dammit, sir," he exclaimed, "I do not hire you to tell me what I can not do. I hire you to fix me up, so that I can do what I want to do!"

Business is Worth Fighting For

At fourteen months' interval a shrewd, trained, sympathetic, foreign observer has visited us. The change in H. G. Wells' attitude from his pristine enthusiasm for the New Deal to his present astonishment at the docility of our businessmen under unwarranted accusation and illegal attack against their rights measures at once the swing to the left in our Government and the disorganization of our business interests.

Our American system of political and economic individualism is under heavy fire. It has accomplished the greatest freedom and most equitable opportunity mankind has ever known. It has earned dividends and paid wages that have been the envy of the world. Because it has failed to function in a universal economic catastrophe, the natural result of the greatest world war, it is utterly condemned, and we are told it must be replaced by a collectivism that bars technological progress, shuts the door of opportunity to ambition, destroys the means and the motives of thrift. Eventually American voters must choose between individualism

and collectivism. Your morning newspaper or this evening's radio program are full of examples of the many and various attacks made upon our present system. If it is to be preserved these attacks must be repulsed and our business leaders must lead a bold sustained counter attack.

Organized for Service

Simply to add another to the trade and technical associations in the chemical field—there are 170 listed in the 1935 CHEMICAL GUIDE-BOOK—is not an accomplishment to arouse great enthusiasm; nevertheless, the idea behind the new Potash Institute is so sound and its staff so conspicuously efficient, that we cannot but feel that a significant organization has been launched under most favorable auspices.

For some time it must have been obvious that the fine educational work on potash in agricultural practice conducted by the French and German importing interests could not practically be carried forward under the present market situation; and the Institute was organized to continue this work for all the potash interests, foreign and American. Furthermore, chemical uses of potash have not recovered from the blow which they received during the potash shortage of the World War, and a sustained research is to be conducted to extend these uses of potassium. These are definite and worthy objectives. The Institute is headed by Dr. Turrentine, an American, who has been closely in touch with potash developments since 1911, ably seconded by Mr. Callister, an Englishman, associated with the importers for many years and thoroughly familiar with potash marketing.

Having a real service to perform and being capably manned, the Potash Institute starts with the promise of becoming an organization which will get tangible results.

Quotation Marks

In the distribution of engineering products, the sales representative must have technical training, usually obtained at technical schools and factories, for without this he finds great difficulty in grasping a knowledge of the machinery he sells or understanding the problems of the ultimate user. Thus there have been developed in this country a large army of men who understand both the principles of engineering and the principles of business economics.—*Marketing Industrial Equipment*, by Bernard Lester.

"Ich Dien"

August Klipstein

FROM Appomattox to the Marne stretched a half century of phenomenal industrial expansion in the United States. During this period, as the demand for chemicals grew, we built up in this country a heavy chemical industry (acids and alkalies, pigments and dry colors, solvents and adhesives, and the more widely used salts, except potash, of the commoner acids) more and more capable as the years passed of meeting our domestic requirements. During this same period, new chemical developments created great gaps in our chemical supplies that of necessity could only be filled from abroad.

There was developing in Europe an entirely new industrial chemical technique. The young science of chemistry was being put to work to serve human needs, and hardly a year passed without the discovery of some new chemical; some better, cheaper way of making old chemicals; some new chemical process useful in industrial operations. The discovery of synthetic dyes from coal tar is but the most conspicuous example of these nineteenth century applications of chemistry to industry.

For a number of good reasons we could play only a minor part in this stage of chemical development. Both the technical and financial resources of our own young chemical industry did not permit it to carry on the necessary research or to experiment with untried products for which there was a small, uncertain market. Since our chemical manufacturers were fully occupied with the absorbing task of supplying the fast-growing demand for standard chemicals, the task of introducing new chemicals to American consumers fell naturally to the importers. In doing so they assumed greater risks, but they performed a highly valuable service to American chemical consumers, so that naturally the more successful among them reaped rich rewards. As our chemical manufacturers kept adding to their products, the importers were continually losing markets, and in self-defence, were forced constantly to be alert to new chemical opportunities. Thus natural competition served the chemical users, until the utter dislocation of the world chemical trade by the World War and the subsequent expansion of American chemical industry into coaltar and other organic



branches, severely cut down the former importance of the importers.

In the old sense that group has all but vanished, yet the prominent position they once held and the real service they long rendered are an important chapter in American chemical annals. They were pre-eminently chemical salesmen, and the tradition of service to the consumer of chemicals which they passed on is today a cherished sales policy of many of our great companies.

Among all the chemical importers of the Old School the one who perhaps most perfectly exemplifies their most successful methods and their best practices was August Klipstein. Keenly scrutinizing every technical and commercial development for opportunities to sell more chemicals; always seeking new ways of helping his customers, he was for years a leader who set the pace in the field of imported chemicals. Inevitably, since he thought originally and acted independently, he introduced into chemical selling a number of valuable innovations. He was a pioneer in technical selling. It is said that he set up the first chemical laboratory in the United States devoted to assisting customers with the deliberate intent of increasing sales. In the early nineties he distributed a little booklet entitled: "Tanning Materials: The Origin, Properties and Uses of Quebracho, Amazona, Myrobalans, etc." which for its accurate information and readable style was years ahead of the stereotyped publicity then used to advertise chemical materials. He introduced the color card



August Klipstein's soldier father, George von Klipstein, who died young, leaving a widow and a son and daughter. Left, a studio photograph of the family taken about 1860 when young August Klipstein, a prize student in school, was beginning to display his marked talent for languages.

in the sale of dyestuffs to the textile industry. His house was the first, so it is claimed, to establish branch offices which carried stocks in their own warehouses for the convenience of local buyers who required prompt deliveries.

To the generation that has entered chemical industry since the war it is difficult to convey the great prestige held by the Klipstein organization. But no old-timer forgets the tremendous influence of that name. Besides being the outstanding importer of chemical materials from Europe, the firm by the turn of the century had extended its activities to every part of the world where raw materials were produced. The international importance of the Klipstein name was such that it was an *open sesame* to trading in the cities and outposts of all five continents. The Klipstein connections in Europe are almost a full roster of famous names in foreign chemical history. As an importer of raw materials, the Klipstein firm vied with the great trading companies of the world. Connections were established in China to search out sources for China Wood oil; in India for tanning materials; in the East Indies and New Zealand for natural resins and

gums, and in many other trading centers of Asia, Africa and South America for raw materials with which to satisfy the ever-increasing demands of American chemical users. No man in chemical commerce deserves better than August Klipstein to wear the proud motto of the Prince of Wales, "Ich Dien"—"I Serve."

The emphasis, too, is well placed upon the first word of that motto. For while his aggressive, modern sales methods soon became standard practice in chemical selling, neither August Klipstein nor his contemporary rivals were of a standardized type. As men, there was no typical chemical importer. Each was a marked individualist. But however sharply their characteristics might be distinguished, all of the group shared as executives two common traits. Each one not only knew, but he also personally tended, every detail of his business, and they worked hours that to us seem cruel and unnatural. All his life August Klipstein, whenever he was in New York, was at his desk by eight in the morning, and he seldom left before six in the evening. Until his death he kept a firm grip upon the reins of his multitudinous interests.

Born of ancient German lineage and educated in Germany, August Klipstein personified the old Germanic virtues. His was the practical philosophy that believed implicitly in hard work and pay as you go. Strict in his demands on those who worked with him,

he was generous to a fault. Impatient with those who gave reasons why a thing could not be done, he often lost his temper at men who took a negative attitude.

"Thousands of reasons why it can't be done; not one why it can!" he would exclaim in great irritation. Over and over again he found a way when others had given up disheartened. His energy was prodigious and served as a spur to the whole organization, and his courage, even in his later years, was more resilient than that of many younger men. It was a courage based not in bravado but in his ability to see ahead, to reason clearly and to penetrate to the heart of a problem quickly.

His almost prophetic business vision was based upon this unusual ability to reason forward to future results from present causes. He was, for example, one of the first to sense the coming need for tannins. Extensive and wasteful lumbering operations had seriously curtailed our native stocks of tannins during the period following the Civil War. The tanneries moved from the seaboard westward, following the vanishing forests. Concentrated, even solid, extracts of the various tan barks began to make their appearance in response to the geographic problem. The tanners were forced more and more to import hides from the Argentine and Australia, and so less and less able to move inland.

August Klipstein sensed the solution of the problem lay in the importation of materials rich in tannins and concentrated tanning extracts—and acted accordingly. He combed the markets of the world for these materials and his pioneering in this field built for him a tremendous market among tanners. His firm was the first to introduce quebracho and myrobalans to this country. This is but one of many situations in which he demonstrated an uncanny gift for forecasting the market.

To this forward-looking habit of mind, he added another uncommon ability. He was a consummate judge of men. This talent served the House of Klipstein in two ways. His sound judgment of character made him an exceptionally astute credit manager for the firm. Based upon his instinctive personal opinion, credit was more than once extended to young men or to new companies in cases where the bare facts of their financial statement would plainly indicate the wisdom of extreme caution. His appraisal of inherent honesty was but seldom wrong, and it built many small buyers into big customers who were firm friends. But his rare good judgment of men was of even greater service to the firm in discovering, and training, and promoting to positions of responsibility the personnel of a truly famous sales staff.

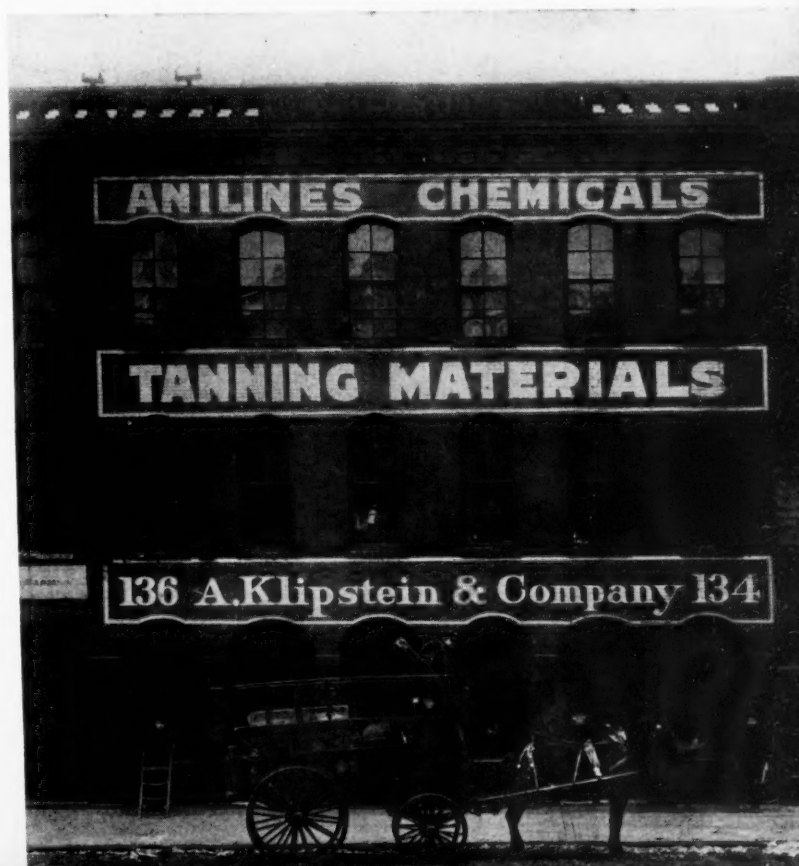
August Klipstein was not himself technically trained in chemistry, and he was by no means a "hail-fellow-well-met" man. Yet he recruited, instructed, and commanded a sales staff of over seventy-five men, which included such prima donnas of the older school of salesmen as C. C. Speiden, Byrd Walker, William H. Jackson, Thomas Clextan, and A. G. Wackenreuter.

To control such hard-working, hard-playing individualists without quenching their fiery enthusiasms; to bind such incorrigible independents loyally to the firm; to inspire these relentless salesmen with his broader ideas of service to the customer was a triumph.

It was the force of his character, his sense of justice, his will power, his intimate knowledge of every detail of the business, and most of all, his own warm generosity (often well hidden) that bound his staff to a man at once impatient and domineering. As one of his own "Klip boys" has said, "Old 'A. K.', as we called him, had a hard shell and a soft heart. He simply hated a shirker, and he had no patience whatever with a stupid mistake. Nobody could fool him because he knew more about the business than all of us put together. For this very reason he appreciated both our difficulties and our successes and was always ready to help in case of trouble and to reward liberally for work conspicuously well done. He was a hard boss and a good employer."

An anecdote is preserved of the early days which reveals in a flash the contradictions of August Klipstein's temperament. On the wall beside his desk hung a large day-by-day calendar which it was the office boy's duty each morning to bring up to date. A new boy once failed to fulfill this simple task, and "A. K.", calling him in, jerked his thumb at the calendar and went on with the great stack of morning mail. The boy mistook his abrupt gesture for an order to close the window. On the window sill stood a great five gallon bottle of distilled drinking water. In his haste

A. Klipstein & Company was one of the first chemical importers to maintain spot stocks at various points. Below, their Chicago office in the early nineties.





In 1891, August Klipstein branched out to manufacture chemical specialties in this country, establishing the Bulls Ferry Chemical Company, an early picture of whose plant at Edgewater, N. J., is shown above.

the boy clumsily toppled this water bottle out into Pearl Street. At the sound of the crash Mr. Klipstein sprang to his feet, and taking in the situation at a glance, roared at the boy. Out of the private office sprang the youngster. At his heels came his employer. Through the accounting room they rushed; down the stairs and across the shipping department on the ground floor. In desperation the boy fled headlong down the cellar stairs and took refuge in the toilet, slamming and locking the door after him. Pounding on the panels with both fists, the head of the firm informed him in no uncertain terms of his instant discharge.

The possibility of a serious accident; the clumsiness of the boy; his seeming stupidity in mistaking a plain gesture, these for the moment had all blinded Mr. Klipstein to the true relationship of cause and effect. Thinking it over, he properly blamed himself for having given improper instructions. Quickly he made handsome amends. The very next morning he took several hours of his valuable time to go out into the country in Harlem where this boy lived and re-engage him with an apology. And it is quite in the spirit of the times and of the firm that this same boy became in due time head bookkeeper.

August Klipstein entered business as a "commercial apprentice" with Gehe and Company, drug and chemical merchants of Dresden, Germany. He was at the time sixteen years of age, having been born in Darmstadt, June 27, 1848. His father, George von Klipstein, was a young Hessian officer, scion of a long line of distinguished but impecunious military men. Had this father lived, it is likely that young August would have followed the family profession; but he died young, leaving a widow with a little boy and girl and a very slender inheritance to care for and educate them. Prompted no doubt by his gentle mother's influence, young Klipstein determined to carve out a business career. As a stripling he decided to become a merchant, and his first ambition was to give his mother and sister some of the little comforts and simple pleas-

ures that he knew had been denied them. He was throughout his life this same grateful son and devoted brother. He was a brilliant scholar in the schools, first of Darmstadt and later of Frankfurt-on-Main; and towards his commercial end he was tutored in foreign languages, so that by the time he was ready for business he could speak and write not only German, but also French and English, almost like a native.

His flair for foreign languages opened the door of opportunity, for when he was but eighteen, he had the chance to join his cousin, Fritz Fink, in Paris. This cousin, who later made a name for himself also in the chemical industry, was at the time employed by the old and distinguished firm of Tollard, commission merchants, who had been carrying on an international business in seeds and grains since 1796. Fink introduced his cousin to his employer, and Paul Tollard was so impressed with young Klipstein's command of French that he immediately offered him a position with the good salary of seventy-five francs a half month. So August Klipstein became a wholesale seedsman and within the year was sent to England to represent the firm in London and Manchester. This experience proved extremely valuable, for it not only enabled him to acquire practical proficiency in the use of English; but it gave him a gruelling training in one of the most highly speculative of all the world's markets.

Returning to Paris in 1868, his knowledge of languages again made possible an opportunity which proved to be the turning point in his life since it brought August Klipstein definitely into the chemical field. The prominent firm of Edm. Renault et Cie. asked him to take charge of all their foreign correspondence. He accepted their offer, and again gained a valuable training which gave him not only a broad view of international chemical trade, but also an extremely intimate knowledge of the details of this complicated business.

His work in Paris was violently interrupted by the outbreak of the Franco-Prussian War. A trusted

employee was thus unwittingly turned into an alien enemy. He left France on one of the last trains that ran between the two countries and reported to the military authorities at his home city of Darmstadt. Because of his youth and slender physique he was placed in the infantry reserve. Accordingly, he went on to Dresden where he again joined the staff of Gehe and Company with whom he had served his first apprenticeship.

After a year and a half, the war having ended, he was recalled to Paris in 1872 by Renault who promptly put him in charge of all their foreign business. He had hardly settled fairly into his new work when he was summoned one morning to the office of the head of the firm and the proposal made that he should come to America to represent them in the United States.

Here was the opportunity he had been patiently seeking and for which he had been so painstakingly training himself. He knew very well the demands of the American market for chemicals. He appreciated thoroughly the rapidity with which that market was expanding. He had at his finger tips all of the European sources of chemical supply, and he enjoyed close personal connections with two great chemical mercantile houses, Renault in France and Gehe in Germany. Moreover, he spoke English. His forward-looking logic completed the vision of a great career in the United States for one August Klipstein, chemical merchant; and he stipulated that, if he came to America, he should represent Renault as their agent, not as their branch manager. His terms were acceptable, and he sailed from Liverpool on the S. S. "England", June 26th, 1872, landing in New York on July 10th.

He immediately opened his office on Wall Street, and almost from the first met with a success that justified his expectations. "Rome was not built in a day" was one of his favorite sayings, and he laid down very solid foundations. Always alert for new opportunities, he was scrupulously careful not to expand more rapidly



The Klipstein headquarters at 122 Pearl Street, New York City, about 1894. The center figure in the background is Mr. Klipstein, and to his left, C. C. Speiden.

than his accumulating resources could finance without undue strain, for he was also fond of quoting "Don't spread your butter too thin." Successively he moved to larger and ever larger quarters, first on Platt Street, then to 52 Cedar, and in 1890 he purchased the two buildings at 122-124 Pearl Street, which for twenty years were the Klipstein headquarters. A newspaper of 1890 describes the building as follows: "The imposing structure four stories high, extending through to Water Street, is completely lighted by electricity, has electric elevators, and contains the laboratories in which the Company's experienced chemists conduct tests and scientific researches."

In 1908 this Pearl Street building was gutted by a great fire. All the records were lost and a valuable stock of dyes and chemicals destroyed. The very next morning in offices lent by a business neighbor, August Klipstein gathered his staff together and carried on. Within a few months they all moved to the large eight story office and warehouse at 644-654 Greenwich Street, beside the Ninth Avenue Elevated.

Tanstuffs and dyestuffs—those two big gaps in our chemical supplies—were from the very first specialties



The Klipstein home at St. Mary's Park in the Bronx, New York City.

of the House of Klipstein, but the wide development of all branches of our chemical and dye industries at the present time makes it difficult for us to realize how short a time back we were still largely dependent upon foreign makers for even the commonest of our heavy chemicals. The sales figures of this great importing house for the year 1908 reveal not only this, but also the extent to which the business had grown:

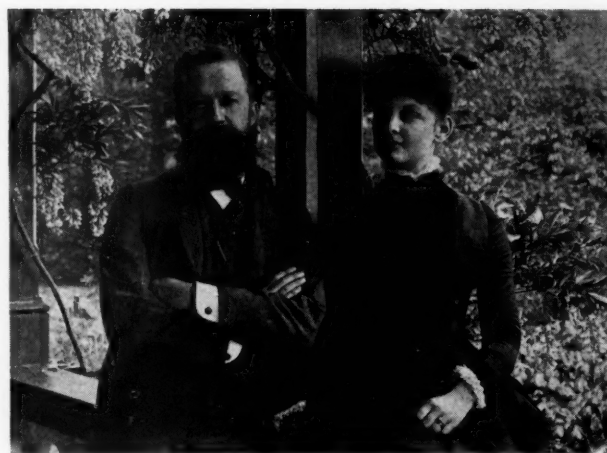
Quebracho Extract	33,000 Tons
Mangrove Bark	10,000 "
Myrobalans	11,000 "
Sumac	1,000 "
Kauri Gum	2,000 "
Bleaching Powder	8,000 "
Carbonate of Potash	2,800 "
Caustic Potash	2,200 "
Epsom Salts	2,000 "
Aniline Salt	1,500 "
Barium Chloride	1,300 "

and over a thousand tons each of such chemicals as prussiate of soda, bichromate of soda, sulfate of alumina, oxalic acid, and white arsenic.

The large sale of the various tanstuffs is significant, for not only was the firm responsible for the first introduction into this country of quebracho and myrobalans; but Mr. Klipstein's personal interest in tannin supplies led him to purchase in Florida sixty thousand



Mrs. A. Klipstein, with her children, August Klipstein, Jr., Herbert C., and Louise A. (now Mrs. A. W. Shields).



Photograph of Mr. and Mrs. August Klipstein, taken in 1886 when they were engaged to be married.

acres of mangrove tree bearing land, a vast plantation still owned by his family. Naturally, at no time, did the tonnages of the highly concentrated coal-tar dyes reach such imposing figures; but Mr. Klipstein was one of the first to recognize the merit of synthetic colors, and as early as 1880 he secured the sales agency for this country and Canada of the Society of Chemical Industry in Basle, Switzerland (then known as Bindschedler & Brusch), an agency he retained till after the World War when it was released in 1920.

Supplying primarily the multitudinous chemical needs of the leather and textile industries, the business reached out to supply chemicals for all the consuming industries. On January 1, 1894, the personal enterprise of August Klipstein became the corporation, A. Klipstein & Company. August Klipstein was president; William H. Jackson, then manager of the Philadelphia office, vice-president; and Ernest C. Klipstein, not a relative, but a partner, was the treasurer. Shortly before, in 1891, Mr. Klipstein had branched out into chemical manufacturing and organized the Bulls Ferry Chemical Company. At Edgewater, N. J., this enterprise operated one of the first plants for the manufacture of industrial chemical specialties. This company, for which the A. Klipstein Company served as selling agent, became one of the largest makers of softeners, sizes, and sulfonated oils for the textile industries; of synthetic tans, bates, and dressings for the tanners; and more recently of synthetic resins for the paint, varnish, and lacquer manufacturers. In the meantime a network of branch sales offices had been established, the points covered being Philadelphia, Boston, Chicago, Providence, R. I., Charlotte, N. C., Montreal, and Toronto.

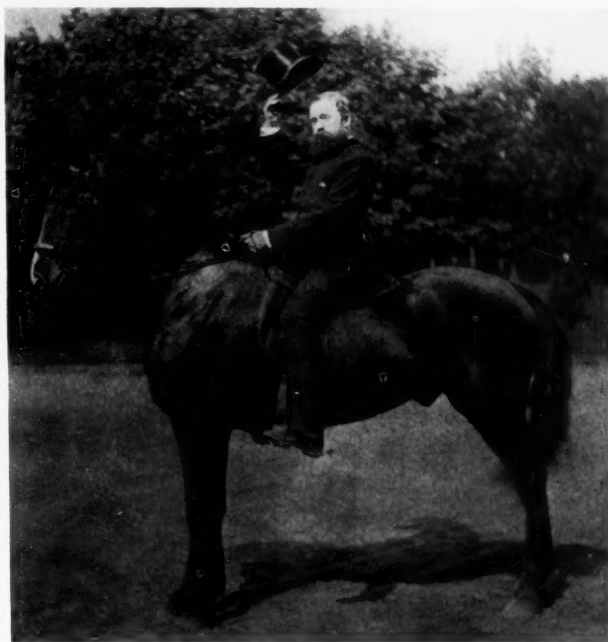
Without outside assistance, through his own persistent zeal, August Klipstein had become the important figure in the chemical world that the young chemical merchant with a flair for languages had dreamed of as he crossed the Atlantic in the summer of 1872. He had developed an amazing variety of enthusiasms

and interests. He was assuredly a living example of another of his favorite quotations: "If you want to get something done, go to a busy man." He was ever ready to help his friends and his family. He was never loath to assume a new responsibility. Strenuously he lived an interested and an interesting life. He had the clipping and memorandum habit, and his pockets were always stuffed with cuttings from newspapers and trade



Good horsemanship runs in the Klipstein family. Above, Miss Peggy Klipstein, daughter of August Klipstein, Jr., on her prize winning Hackney pony, "Yankee Doodle"; and right, August Klipstein, Sr., on his old favorite, "Telephone."

of everything—foods, clothing, furnishings and equipment of all kinds—as the truest economy, while his good sense dictated that all of these good things of life should be for wholesome use and enjoyment, not for display. Those who only knew him behind his formidable business manner would never suspect that among his friends and family he was a great tease and practical joker who could laugh, even when the joke was turned upon him, till the tears rolled down his cheeks; a jolly, companionable father who delighted to



journals, odd sheets of paper, old envelopes and what not upon which he was constantly jotting down with a stubby pencil quotations from his voluminous readings in history, travel, philosophy, and poetry. Day or night, for he kept a pad at his bedside, he would note new business ideas, and he never failed to record the name and address of any new firm he heard of or whose place of business he passed, which seemed a likely buyer of chemicals. Off that note would go to the salesman in that territory, and he always insisted upon a special report on all of these new personal prospects of his.

His recreations were chiefly intellectual—in an easy chair with a good book in any of three languages, he could be quite oblivious to his surroundings, and he thoroughly enjoyed the opera and the theatre—but he rode horseback and took long walks. He was for years a prominent member of the Riding and Driving Club of Brooklyn, and one of his favorite stories was of crossing the span of Brooklyn Bridge on a narrow plank walk with his daughter, Louise. As a result the frail youth who was refused for military service became an extremely robust man with a great store of energy.

His tastes were Spartan in their simplicity. Ostentation of any kind was repugnant to his nature. His whole way of living was modest in comparison to most men of his means; but he insisted always on the best

take his children to the Zoo and the Museum of Natural History and who instituted as an annual family custom a great gala trip to the circus.

Business was the dominating influence in his life, a gigantic game of chess which he took a keen delight in winning. No other field of activity, no profession or pastime could offer greater opportunities for displaying his varied talents. Because his interests were international, August Klipstein was truly a man of the world. He knew intimately many of the great and near-great in every corner of the world, and the number of men who rose to prominence with his encouragement and backing is a tribute to his keen judgment and remarkable personality.

"Keep your sword bright," meaning body, spirit, and intellect, was another of the sayings August Klipstein was fond of quoting and which he practiced as well as he preached. To the very end he remained the actual head of the firm of A. Klipstein & Company and the president of the Bulls Ferry Chemical Company. Having founded the business, carried it successfully through a fire, two panics, and a war which of necessity shook loose the very foundations of the chemical trade as he had always known it, he died in his seventy-eighth year, on January 8, 1926. He kept on to die as he always wanted to die, in armor, his bright sword untarnished, broken clearly at the hilt in the good fight.

Organic Inhibitors for Iron and Steel

By Harold A. Levey

INHIBITORS are reagents which retard the action of acids on metals. An example of their use is the recent development of the Dow Chemical Co.'s process for the reactivation of dormant or exhausted oil wells. The process involves the pumping of hydrochloric acid down the pipes to the floor of the oil pocket. The acid attacks the calcareous formations developing considerable gas pressure and ejecting oil not readily obtained by pumping. Discriminatory action of the acid is obviously required; i.e., it must not attack the iron of the down-pipe or the pressure pumps, but must act upon the calcite rock. This is the desired rôle of the inhibitor.

The situation parallels the selective action of the inhibitor in the pickling bath which permits the almost unrestrained action of the acid on the scale and foreign matter, and substantially retards its action on the metal itself. Just as there are catalysts which accelerate certain chemical reactions, so these substances retard the action on the metal. In this case, however, the selective action is of great importance, as it is not desired to retard the action on the scale or non-metallic substances.

Inorganic substances have long been used for this purpose. In 1905, Burgess¹ reports on "Some Observations on the Influence of Arsenic in Pickling Solutions." Other inorganic inhibitors have been used since; however, the effectiveness of many organic types is so much greater and more economical, that they have now completely replaced the inorganic types.

The first effective organic inhibitor was reported in 1920 by Griffin,² who found that the addition of small amounts of formaldehyde greatly reduced the solvent action of hydrochloric acid on steel. One per cent. of absolute formaldehyde, or a two and one-half per cent. solution of formalin added to a 10° Baumé sulfuric acid decreased the action on wrought iron 95%, cast iron 87% and steels from 88% to 98% depending upon their composition. All samples were treated 60 minutes. The loss of activity due to formaldehyde in the case of the non-ferrous metals was negligible.

With hydrochloric acid 1:1 dilution, to which was added 1% of formaldehyde; the inhibitory effect in reducing the action on wrought iron was 81%, cast iron 72%, and steel 87%. In a 10% nitric acid solution with 1% formaldehyde the results were not comparable, due to probable reaction between the nitric acid and formaldehyde. In some cases the reactions were violent. The inhibiting effect is not nearly as marked: with wrought iron reduction in activity was 39%; cast iron, 29%, and steel, 22%. In a 3% solution of

Aqua Regia containing 1% formaldehyde the reduction over a 60-minute test amounted to 77%.

In the pickling operation the desideratum is to consume the acid in dissolving scale and oxides, using a minimum in dissolving the metal itself. The function of the inhibitor is to control this factor. Only in such cases as hot-dip galvanizing is it desirable to etch the surface of the metal, which results in a better bond between the metal base and its coating. Although we are chiefly concerned with acid consumption; the saving of metal, elimination of fumes, and hydrogen embrittlement must also be taken into account. Since the solution of metal is the essential variable in the consumption of acid, this rate of solution may be taken as an indicator of inhibitor efficiency. And since solution of the metal may be assumed to be accompanied by a chemically equivalent evolution rate under definite conditions, it may be used as a convenient measure of metal solution.

The following tests were made using a ½ inch length of standard ½ inch pipe in a bath of 250 c.c. 4% sulfuric acid containing 1/10 per cent. of the inhibitor and kept in a water bath at 71° C. for 45 minutes. The mixture of acid and inhibitor is allowed to stand for an hour before pickling in order to allow for complete solution and reactions. The results are reduced to standard conditions and expressed as cubic centimeters of hydrogen per square centimeter of steel surface. The rate of hydrogen evolution for a variety of substance is as follows:³

With no inhibitor the rate was 30 c.c. per sq. centimeter.

Sulfonated oil	27	or 90 % active
Nitrogen base oil (gas works)	21	or 70 % active
Paper waste liquor	20	or 67 % active
Sulfonated animal matter	11	or 37 % active
Low grade wheat flour	4	or 13 % active
Nitrogen bases in acid	3.5	or 11.5% active
Coal-tar nitrogen bases in acid	1.5	or 5 % active

The range of inhibitory properties is wide. At 0.1 per cent. hydrogen-evolution, rates vary from 0.3 to 30.0. Practically zero hydrogen evolution rates can be obtained by using higher concentrations of inhibitors or more powerful inhibitors, but such tactics result in the expenditure of more for inhibitors than would accrue from the savings of acid and metal.

Inhibitors must not be injurious to the metal pickled or to the operators. For example, a slight residue from certain inhibitors makes it impossible to apply a satisfactory zinc coating by the hot-dip process. In addition the pickling time must also be considered. In

some cases it takes from 10 to 100% longer to pickle in the presence of certain inhibitors.

The above data impresses the fact that while a wide variety of organic substances exhibit inhibitive properties, the nitrogen bases appear to be by far the most effective. Rhodes and Kuhn⁴ have made a very detailed study of this type, and conclude that to obtain the highest degree of efficiency the nitrogen must be in the aromatic ring,—as for example, pyridine, quinoline and acridine. Many such cyclic organic bases show, to a considerable extent, a specific action in retarding the solution of the metal in the acid, which is probably due either to the deposition of the inhibitor as a protective film on the metal or to some specific action of the inhibitor in retarding the formation of free gaseous hydrogen. The mechanism of the protective action will be discussed more in detail later.

The inhibitors most extensively used commercially today are the crude nitrogen bases obtained by extracting coal-tar oils or similar materials with diluted sulfuric acid. These acid extracts are commonly sold and used as such with little, if any, further purification or concentration. They are usually more or less heterogeneous and variable in composition and contain varying amounts of the active material and considerable quantities of inert or even objectionable purities.

Results obtained in the determination of the inhibiting power of the following substance in concentrations of 10 millimols per liter is as follows:

Triethanolamine	10.5%
Aniline	14.5%
Pyridine	19.0%
Quinoline	49.4%
2 Methylquinoline (Quinaldine)	53.9%
Crude quinaldine	82.3%
Acridine	82.4%
Methylacridine	81.8%
Phenylacridine	91.8%
3, 6 Dimethyl 1-2-7 diethyl- diaminoacridine hydrochloride	99.8%

In the experiments made with crude quinaldine it was assumed that the average molecular weight of this material was the same as that of the pure quinaldine, and the solutions were prepared on this basis. It will be observed that the crude material showed appreciably higher inhibiting power than did the purified quinaldine. The impurity in the crude product is apparently a very efficient inhibitor. It was observed, however, that an unsaturated solution of acridine in 7.5 per cent. sulfuric acid showed an inhibiting efficiency of 84.6 per cent. after standing for 3 days at 60° C., although the same solution when freshly prepared gave a value of only 82.4 per cent. The difference, although slight, is greater than the experimental error. It is possible that the change in efficiency is due to a slow change in the structure of the material in solution. It was suggested that the sulfates of the bases of high molecular weight compounds might hydrolyze to form the free base in the colloidal state, and that the adsorption of the free base by the metal might form a protective film and thus cause increased

inhibiting action. No particles of colloidal dimensions could be detected, however, when aged solutions of the dinaphthacridines were examined under the ultra-microscope.

In the series of pyridine-quinoline-acridine the increase in the number of rings in the molecule is accompanied by a regular increase in inhibiting effect. It is apparent that the substitution of naphthyl fluoryl, or phenanthryl groups for the simple phenyl groups in acridine also increases the inhibiting action, but at the same time the solubility is so decreased that it is no longer possible to prepare a solution containing as much as 10 millimols per liter. Because of the very limited solubility, quantitative comparison of the inhibiting effects of equimolecular solutions were not made.

In the series pyridine-lutidine-picoline-collidine the introduction of a single additional methyl group increases the inhibiting action of the compound in concentration of 10 millimols per liter by nearly 25 per cent. The effect on the efficiency in higher concentrations is quantitatively similar, but quantitatively less regular. In the quinoline and acridine series the introduction of methyl groups also increases the inhibiting action, although, as might be expected, the relative inhibiting action of a single methyl group decreases as the molecular weight of the nucleus increases. That the position of the methyl group may sometimes have a marked effect is evident from the results obtained for 2 methylquinoline and for 6 methylquinoline.

A few experiments were made to determine the effect of some of the inhibitors upon the rate of corrosion of metals by solutions of calcium chloride. Weighed strips of metal of known dimensions were immersed in a 25% solution of calcium chloride for 8 days at room temperature (about 22° C.) and at 60° C., then rinsed, dried, and re-weighed. In one series no inhibitor was present; in the other the solution of calcium chloride was saturated with crude quinaldine. For iron with no inhibitors there was a loss in weight of 0.0010 gms. per square centimeter, and with an inhibitor the loss was 0.0009 gms. per square centimeter at 22° C., while at 60° C. with no inhibitor the loss was 0.0028 gms. per square centimeter, and with an inhibitor the loss was 0.0016 gms. per square centimeter. This means that at the lower temperature efficiency was 10% and at higher temperature 42%.

That the addition of an inhibitor to the dilute acid does not materially affect the rate of solution of iron oxide in the acid was shown by the following experiments: Two similar strips of iron covered with heavy scale were immersed in 7.5 per cent. sulfuric acid. In one case the acid contained no inhibitor; in the other, 3, 6-dimethyl-2, 7-diaminoacridine ethylchloride was present. At various intervals the strips were removed, rinsed, dried and weighed. The total loss in weight of metal in dilute sulfuric acid for a period of five hours on strip One with no inhibitor was 1.6403 gms. per square centimeter, and with inhibitor was 0.1451.

In the case of strip No. 2 the loss with no inhibitor was 1.7010 gms. per square centimeter, and with inhibitor 0.1150 gms. per square centimeter.

The theory of the action of the inhibitors and their mechanism in minimizing the corrosion of metals in dilute acids has only received limited study. Isgarisher and Berkman⁵ have observed that certain colloids, such as gum arabic and gelatin, increase the apparent over-voltage of iron in contact with sulfuric acid. Sieverts and Lueg⁶ measured the apparent over-voltage of iron in contact with dilute sulfuric acid containing various heterocyclic nitrogen bases, but were unable to establish any general or quantitative relationship between the effect on over-voltage and the inhibiting efficiency. They suggested that the inhibiting action was due to the formation of an inactive film at the surface of the metal, but gave no data to support this hypothesis. Speller and Chappell⁷ point out that many inhibitors are violent animal poisons and some are known to have a marked effect in certain catalytic processes.

The combinations of these observations seem to justify placing the action of inhibitors in the general class known as catalysts. Inhibitors may be considered to act by forming some sort of film over the bare cathodic steel, and this film acts to prevent the ready evolution of hydrogen.

Chappell, Roetheli, and McCarthy⁸ measured the effects of quinoline ethiodide in various concentrations and under various conditions, upon the rate of evolution of hydrogen from iron and dilute acid and also upon the apparent over-voltage between iron (and some other metals) and acid. They found that there was a general parallelism between the retardation of the evolution of hydrogen and the apparent over-voltage when the iron was made cathode in the acid solution. The effect of the inhibitor on the anodic over-voltage was slight and was considered insufficient to account for the inhibiting effect. These investigators concluded that when iron is placed in a dilute acid solution containing an inhibiting base the inhibitor is set free at the locally cathodic areas, and that "the mechanism of inhibitive action is possibly due to the formation of a blanketing layer of discharged inhibitor substance absorbed on the cathodic areas."

In measuring the apparent over-voltage Chappell and his co-workers used the Method of Knobel⁹ which does not distinguish between true cathodic over-voltage due to an increase in the discharge potential of the hydrogen ions and apparent cathodic over-voltage caused by an increase of the resistance at the interface between metal and electrolyte.

Hebberling¹⁰ has shown to what extent iron may have its surface rendered passive. He states that corrosion is an electro-chemical process, that the rusting of iron takes place between the potential range of -0.2 V. sub-passive state and $+0.4$ V. sub-active state. The state of super-activity, or cathodic passivity is characterized by an interval of plus 0.5 V. to plus 0.9 V., the state of anodic passivity from minus 0.2 V. to

minus 0.9 V. In the range of these two extremes iron remains absolutely free of rust. In the first case, however, only in the presence of alkaline solutions of low concentration, a practically useful treatment of the surface has not yet been developed.

According to Pirak & Wenzel,¹¹ a relation exists between the inhibiting action of an organic compound and its constitution, active atomic groups, dimensions and positions of substituted groups within the molecule and the molecular weight all of which are important factors.

A considerable amount of research work is being done on this problem, and with the correlation of this data we may soon expect to have comprehensive understanding of the phenomenon of the control of the selective action of acids on this type of corrosion.

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Purifying Sand for Glass

A new process for the purification of sands was described by F. W. Adams, M.Sc., in a paper to the Society of Glass Technology in Sheffield, and a summary published in *The Chemical Trade Journal* (England).

In this paper, mention was made of the origin of sands and of the types of impurities which occur in them likely to affect their suitability for the manufacture of colorless glass. Attention was mainly directed to British sand deposits, with particular reference to the amount and occurrence of their iron oxide content. A short account was given of several chemical methods which had been tried in the past for treating sands to reduce their iron oxide content sufficiently to render possible their use for the manufacture of good quality white glass.

The investigations which led to the development of the process outlined were described; also the results obtained by its use on various types of sand. For this process dilute solutions of acid oxalates were used, together with small quantities of ferrous sulfate. The sand to be treated was agitated for a short time with a solution containing these two chemicals at a temperature of 26° to 65° C.

In a second paper to the meeting, A. E. J. Vickers described an investigation to obtain information as to how the addition of such substances as ammonium sulfate, salt cake, borax, sulfur, etc., affected the viscosity and surface tension of a soda-lime-silica glass.

All the salts tried produced a decrease in the viscosity of the glass over the normal working range of temperature, ammonium sulfate and borax being especially active in this respect. The use of borax gave a glass of rather different character to the plain glass taken as the standard of comparison. With ammonium sulfate, the final glass was of identical chemical composition to that taken as the standard.

In the case of surface tension, the general effect of the addition of the salts was to lower the value, but the decreases obtained by the use of ammonium sulfate, borax, and sulfur were unexpectedly large. A lowering of the surface tension would result in a very large increase in the rate of wetting of the batch, and hence would help in the glass melting process.

Diogenes in Half a Barrel

By Howard W. Elkinton

TO impress men with the virtue of his life Diogenes dwelt in a tub. He may have asked permission, for the tub belonged to the temple of Cybele, or he may have occupied his novel residence as a squatter. At all events, the world remembers Diogenes. Maybe the keepers of the temple remember the tub or—and this is a large maybe—maybe it is also remembered that a tub is half a barrel?

Passing from the convenience of a tub to Diogenes and to countless other human beings since his time, consider the parent vessel—the wooden barrel.

We see a cylinder swollen around the belly, closed at both ends with solid circles. In a structural sense, a barrel is the expansion of the wheel. Put it another way. Slice a wooden barrel into sectors, there fall apart so many hoops or wheels with two solid ends. The adaptation of the wheel to the mechanical arts was a very long stride in human development. That obscure and unknown Neolithic who first became wheel-minded deserves a great tribute. Second, to him is the honor due that clever fellow who made the first barrel. The trail of the barrel fades in the past. Barrels and half-barrels were in use long before Diogenes took to his tub.

The wooden barrel deserves diagnosis. It represents the circle-arch system so contrived to form a vessel that will carry liquid loads. It is not enough to describe the body of a cask merely as a cylinder because much of the virtue turns on the longitudinal arch. The heads, as wheels, need no further reference. The result is that these useful vessels can be rolled on the belly, spun on the chime and stood on the head, with relative ease.

Any child can roll a barrel of herring along a floor. A small child pushing 500 pounds of packed herring is a singular feat. The child really wheels the fish. The second facility is not so obvious; namely, the use of the chime in moving barrels. Almost anyone can reconstruct a mental picture of a workman "wheeling" a heavily laden barrel on its chime. Not everyone has seen workmen spinning barrels from one point in a warehouse to another by twirling them in such a way that they will travel down a straight line for 50 feet and then come to rest on the head. I saw that clever trick turned with rhythm and beauty in a cooper shop. The

packages spun, riding on the bottom chime, held at a 30° angle by the gyroscopic motion of the initial twist. It was a wonderful exhibit of using the principle of the wheel with great dexterity. This trick has saved hundreds if not thousands of dollars to all who handle barrels.

Turn again to the bilge. Here we have another enormous money saver. Load a barrel with soap weighing six and a half hundred-weight and then lift that mass from a horizontal to a vertical station of rest. Not so easy, that. It would be impossible if the barrel had no bilge. The dead weight lift of 325 pounds stumbles a Brobdingnagian stevedore; whereas an ordinary human being can sway or surge the barrel even with a load of heavy soap from a prostrate to an upright position. It takes rocking until with one hefty, final heave the barrel stands on its head. If it were not for the arch it would be impossible. This simple principle developed

Courtesy Merck & Co.



in the barrels as a mechanical application of the arc, saves industry millions of dollars of labor.

I can never think of the wooden barrel without a touch of romance. This useful container, as has been observed, leads us back into the co-technic period of industry when wind and water were prime movers and wood and stone the prime materials. Long before steel served as hoops, wooden saplings were split and wound around the staves so as to bind them in place. Elm, willow and hickory usually served. Hoops can be made from a great many other woods such as oak, ash, birch and occasionally beach and maple. In the South pine,



Hooping barrels.

gum, cypress and magnolia have been employed but a great deal depends on the skillful sawing of the timber and the working of the green wood. In days before steel hoops hickory was cut along the creeks and streams of Iowa, fashioned into hoops and sold down river as a precious article of commerce. Such value was attached to these hoops, I was told by an old-timer, that they were used as currency. A hog or a bushel of corn had a worth of so many hickory hoops. Even the dowry that went with one's daughter could be reckoned in hoops. It is just possible that this practice in the West, together with an abnormal fashion for the full dress below the waist ushered in the hoop skirt. At all events we see barrels bound with wood. Great casks carry china-ware from the wharf to the warehouse of the importer. These barrels are common along the waterfront. Again, certain articles cannot be bound by steel. Pickles, for instance. Only the day before yesterday I flattened my nose against the pane of Gimbel's show-window straining at gherkins packaged in tidy little wooden barrels neatly bound with hoops of osier.

It was in a cooper shop in the middle-west that I was taught the art of "raising" a barrel from scratch. My tutor was "larned" in the trade. He had made so many barrels and for such a long time that one shoulder was humped above the other. He walked like a barrel, at least so it was said, and he wore a funny cap constructed, according to local gossip, of a bit of waste heading which he could not build into a barrel. Be that as

it may, he was a good and kindly teacher. It is no mean task to cut a stack of heading, select a brace of staves, notch the chimes, capture the first circle, draw the head, close, tap, test and pat the new-born bulging babe with a blessing on its way. Bear in mind that piece work prevailed so that there was no time for careless and clumsy work. My tutor has been gathered to his fathers but I can close my eyes and see him back around a barrel as he drove home the hoops. Ratta-tat tat, ratta-tat tat, ratta-tat with a certain musical note that comes back to my inner ear after these many years.

It is impossible even to hint at all of the articles of commerce carried in barrels. The catalog of an ancient English house famous for its barrel-making machines, refers to the vegetable oils, mineral lubricants, molasses, fish, paint, and butter. We are not allowed to forget gun-powder kegs. The cement trade still uses the barrel as the price unit although paper bags have replaced wood. Innumerable chemicals travel in barrels and considering slack barrels we see a wide range of useful merchandise. Turkeys are slaughtered in the Dakotas and tucked away in slack barrels. Cabbages in New Jersey find their way to market in open-work



Heading up barrels at the Eddystone, Pa., plant of the Virginia Barrel Co.

slacks tight enough to hold the load but airy enough to provide ventilation. Millions of apples are shipped annually out of Winchester, Va., to all parts of the world in slack barrels. The revival of the whiskey trade, the renaissance of the beer keg, and the restoration of the wine tierce is a chapter in itself.

Imitation is, after all, an ironic compliment, and so steel drums, originally aping the wooden barrel, are creeping further into industry. During the 12 months of 1934, 677,322 steel barrels were produced in the United States. This topped the production of 1933 by 105,751 packages. During the month of December alone 422,985 steel barrels were made with the mills operating at only 27 per cent. capacity. If the wooden barrel should finally disappear from the markets, which drift is in process, steel would supply most of the needed carriage.



Tongue and grooving staves and raising sugar barrels at Eddystone, Pa., plant.

Bending back toward the barrel again, after the staves are properly made and the heads are selected, attention must be given to the interior. Whiskeys require a charring which permits the liquor to reach the tannin in the wood and thereby enjoy, over a varying long period of time, a cure. Beer, on the other hand, requires protection from the wood so that makers of beer kegs line these packages with a special pitch known as brewers' pitch. For beer, a very heavy stave is required and a similarly heavy steel hoop, as a well-behaved beer barrel will be passed back and forth on countless journeys, bumping from truck to pavement and from pavement to cellar where it will rest under a different temperature, so that the thick oak staves must be able not only to stand the bruises but also to insulate the beverage.

The best tight barrels were constructed to carry powdered milk. They are fabricated with tongued and grooved staves, glued heading with their insides slightly hardened by fire. Industry uses hundreds of thousands of slack barrels for shipping sugar. Before sugar was marketed in paper cartons housewives would buy in bulk. I remember the sugar barrel in the third floor which unfortunately was visited by mice almost as much as by the family.

One of the neatest uses of a wood barrel is the slack package that contains pitch or solid tar. Hot, liquid asphaltum is poured into the barrel where it solidifies. It then travels to the job which may be the repair of a leaky roof or the patching of a ragged road. At all events, the barrel is split open with an ax. The staves, with a little pitch adhering thereto, are lit under the kettle. They make the fire that heats the tar which is poured as a liquid into place. The stuff hardens. The fire dies. The navy kicks the ashes about and barrel and contents have left no trace. There is no disposal problem. It is hard to imagine a more perfect or useful union than this between the pitch of Trinidad and the slack barrel of the U.S.A.

What kind of wood was used in the tub of old

Diogenes? My guess is oak. I wish I could think that it was fir as fir makes a beautiful barrel. But Diogenes was determined to make himself uncomfortable so I am quite sure he passed up the refinement of fir. Some woods are very difficult to identify, birch and maple, for instance, and elm and hackberry. It takes a practiced eye to discriminate between tupelo, sweet and red gum, sycamore and cottonwood. Naturally, red oak and yellow pine are easy. Nevertheless, in all woods there is a practical tolerance of commercial practice below which in selection it is too expensive to go. The study of the timber used in cooperage and those things that spoil wood in the tree, in the lumber yard and in the mill are too ramified to be included here.

Diogenes, the cynic of the 4th century B.C., understood more thoroughly than we the manufacture and use of the wooden barrels. He certainly had more personal intimate contact, though he used a tub, the half of a single barrel.

Reference: Cooperage J. B. Wagner, Yonkers, 1910.
Ransomes Cask-making Machinery, 1921.
Regulations and Practice of Associated Cooperage Industries of America.
Oil, Paint & Drug Report. 2/25/35.
Manufacturing Chemists Association of the U. S.
The Wooden Barrel.

Production North African Phosphate Rock

Total deliveries by North African phosphate rock mines during the first half of '35 were about 1.70 million tons, as compared with the 3.71 million tons for 1934. In most markets, consumption has shown little change on the corresponding six months of last year, but a further decrease in demand is found in the case of France. Deliveries by the Office Chérifien between the two half years dropped from 641,532 tons to 597,610 tons, but exports by the Phosphats de Gafsa improved from 464,758 tons to 635,988 tons. Deliveries by the Phosphats Tunisiens company for the financial year ended June 31, 1935, were 242,794 tons, as compared with the 169,034 tons of 1933-34.

H₂O₂ In Breadmaking

The use of hydrogen peroxide instead of yeast in breadmaking was the subject of a paper "Yeast and Yeastless Bread," by L. H. Bailey and J. A. LeClerc, delivered to a recent meeting of the American Association of Cereal Chemists. The breads produced using yeast and using hydrogen peroxide were divided into crust and crumb, and each of these portions analyzed. The hydrogen peroxide bread had slightly more crust than the yeast bread, and its moisture content was a little lower. The peroxide bread contained approximately three times as much sugar, alcohol-soluble nitrogen, potassium-sulfate-soluble nitrogen, sodium chloride-soluble nitrogen and water-soluble nitrogen, as the material made with yeast. It likewise contained twice as much water-soluble solids and slightly less soluble starch. The percentages of fat, ash, and total nitrogen in both breads were the same. The appearance of the crumb in the two breads was very similar, with the peroxide bread possessing as good a grain and better texture than the corresponding yeast bread. The hydrogen peroxide loaf was fully as large as the yeast one, but its flavor was poor, as the flavor of ordinary bread is largely due to yeast activity.

The Sperry Electrolytic White Lead Process

By W. J. Knox

White Lead Plant Superintendent, Anaconda Lead Products Co.

FEW electrochemical processes for producing commercial products were employed at the beginning of the present century. During the intervening period the development of these processes has been rapid, and today this newest branch of technology occupies a very prominent position in industry.

Elmer A. Sperry was one of the pioneers in this field. His interest in electrochemistry led him in 1900 to equip a specialized electrochemical research laboratory. This laboratory was located at Washington. Dr. E. A. Byrnes and C. P. Townsend were placed in charge. Mr. Sperry had been impressed with the enormous future of electrochemistry in performing chemical reactions under the unique condition of being able to control and localize the energy best suited to bring about atomic rearrangement or combination. Among the problems selected for study was the production of white lead, lead arsenate, litharge, detinning, production of chemically pure tin, tin chloride, production of pure iron from tin scrap, electrochemical tanning of hides, and the production of sodium hydroxide, chlorine and hydrogen from brine. A number of commercial developments resulted from this work. The Townsend cell and the Sperry cell are two outstanding examples.

The experimental work, started in Washington, was later transferred to the research laboratories of the Sperry Development Company, located in Brooklyn, N. Y., where the development of the electrolytic white lead process was continued under Ralph M. Harrington. In 1919 the Anaconda Lead Products Company was organized to produce electrolytic white lead at East Chicago, Ind., by the Sperry process. Operations since the construction of the original pilot plant have been under the direction of G. E. Johnson, now General Superintendent. R. G. Bowman, now Assistant General Superintendent, was placed in charge of the present operating plant at the time of construction in 1919.

The Sperry electrolytic cell can be used in producing any insoluble salt of any metal. As operated to produce white lead it consists of a concrete cell in which are suspended lead anodes and insoluble iron cathodes. The cathodes are encased in porous fabric envelopes which act as a diaphragm, separating the electrodes. Through the compartment formed by the fabric envelope surrounding the cathode is circulated the catholyte. This electrolyte contains sodium acetate and a large amount of sodium carbonate. The cell tank is filled with the anolyte which circulates around the submerged anodes and the outer surface of the diaphragm.

The anolyte contains sodium acetate and only a trace

of sodium carbonate. Each electrolyte is maintained in rapid circulation about its electrode. The circulation system of the two electrolytes are entirely independent, and no communication exists between the catholyte and anolyte save through the diaphragm of the cell.

The cell is placed in operation by passing a D.C. current through the cell. Carbonate and hydroxide ions migrate under the influence of the current from the catholyte through the diaphragm to the anolyte at the same time electrochemical equivalent amounts of lead ions dissolve from the surface of the lead anodes and pass momentarily into solution in the anolyte. Since the anions are more mobile than the cations the plane in which the ions meet is quite close to the surface of the anode. In this plane precipitation takes place, and white lead is formed. Due to a slight seepage of catholyte through the diaphragm the anions are transferred to the anolyte in amounts in excess of the reaction requirements. This results in complete precipitation of the lead ions dissolved from the anode.

The continuous flow of anolyte removes the white lead from the cell as fast as it is formed. From the cell the anolyte flows to a settler where the white lead is removed and the clean overflow from the settlers is returned continuously to the cell. The catholyte in its circulation external to the cell is carbonated to replenish the carbonate ions and neutralize excessive hydroxide ions formed at surface of the cathode.

The settled white lead is removed continuously from the bottom of the settler to a filter where it passes through a counter-current washing cycle to remove and recover the anolyte solution. The washed white lead pulp is dried, ground and air floated, and is then barrelled in a dry pulverent form.

A study of the cell reactions indicates that the formula for white lead should be written $\text{Pb}(\text{CO}_3\text{PbOH})_2$ and that this compound is formed through the reactions of the intermediate compounds $\text{Pb}(\text{CO}_3\text{H})_2$ and $\text{Pb}(\text{OH})_2$. The outstanding characteristics of electrolytic white lead—exceptional purity, brilliant whiteness and uniformity—are due to the ease with which cell reactions can be controlled and to the fact that in the cell only the lead is dissolved from the surface of the lead anode, other metals remaining on the anode surface in the form of a slime.

The physical properties of electrolytic white lead can be varied over a wide range to meet changing specifications. This is accomplished by changing the operating constants of the cell. The uniformity of the various grades produced is the result of the positive control of the chemical reactions taking place in the cell.

The Vegetable Oils

as Chemical Raw Materials—Part II

THE largest single consumer of oils and fats is the soap industry whose total consumption in 1934 reached 1,474,415,000 pounds. This represents an increase of 12.4 per cent. over 1933 and 7.2 per cent. over 1932, and a normal figure is but little under two billion pounds. Unfortunately for the vegetable oils practically all of this increase in 1934 in the soap kettle demand has recently been in tallow. With the introduction of the excise tax on various imported vegetable oils in 1933 the rise in tallow consumption is very easily explained. Yet, despite this tax on coconut, the principal vegetable oil now employed in soap manufacture, consumption by soap makers in 1934 was 341,124,000 pounds, as compared with 322,264,000 pounds in the year before the tax was imposed, but did not reach the 1932 figure of 353,527,000 pounds. This was largely an artificial increase, for in the first few months of the year shrewd makers saponified extra quantities of coconut oil before the tax went into effect.

Looking from a long-term view the consumption of oils in soap manufacture doubled between 1912 and 1929. During that period many technical innovations were made that have affected the industry tremendously. They may be summarized as follows:

1. The manufacture of yellow laundry soap from tallow and rosin instead of from cottonseed oil or other soft vegetable oils and rosin.

2. A larger proportion of white soaps and a smaller production of yellow laundry soap.

3. A switch in popular demand towards flakes, chips, granules, beads, and powdered soap and away from bar soaps. The most important effect of these changes has been the decline in the use of cottonseed oil for soap-making and the rise of coconut in its place. Soap oils may be roughly divided into three groups:

- 1.—The hard oils which yield a quick-lathering soap producing plenty of foam though the lather dries quickly and is often irritating to sensitive skins. These hard oils are solid at ordinary temperature, and coconut and palm-kernel oils are the outstanding examples of this type available and used commercially. It is the type of soap made partially from such oils, that has shown the greatest expansion in use in the last decade.

- 2.—Hard oils which yield slow-lathering soap, including tallow, animal greases, palm oil, and hydrogenated soft oils, have for centuries been the backbone of the soap industry. Employed without some admixture of coconut or palm-kernel they form a hard, firm soap with slow solubility, but with small lasting bubbles. It is easily seen that for a really high class soap, while some substitution between class 1 and class 2 oils is possible and in fact most desirable, very definite limitations are placed on the soap maker.

- 3.—Soft vegetable oils, liquid at ordinary temperatures, such as cottonseed, corn, soybean, peanut, olive oil foots, sesame, linseed, and castor. Any appreciable interchange of these with the hard oils materially alters the type of soap, although some substitution is possible, probably desirable, within limitations.

The increase in the use of coconut oil in the past decade and the decrease in the consumption of cottonseed for soap manufacture has brought about a move from a domestic raw material to an imported one with all that change usually implies. The raw material for the production of coconut oil is copra, the dried meat of the coconut. Both copra and coconut oil in various stages of refinement have been brought into this country in increasing amounts. The Philippines, because they enjoyed freedom from the two cent import tax imposed on other countries in both 1922 and 1930 Tariff Acts, have enjoyed the bulk of this business. Copra, on the other hand, has been duty free, and while the Philippines have most of this trade also, other producing countries, British Malaya, Australia, British and French Oceanias, have been exporters into this country. Approximately one half of the coconut oil consumed in this country in 1930 (out of a total of 660 million pounds) was produced from copra processed in this country, the balance consisted almost wholly of Philippine oil. This consumption in 1934 was divided as follows: soap, 341,124,000 pounds; margarine, 123,678,000 pounds; other edible products, 78,636,000 pounds; with a small scattering in lard compounds and other miscellaneous uses.

Any marked curtailment in a large, readily available supply of coconut oil would work a tremendous hard-

ship on American soap manufacturers. Sufficient evidence of this was seen in the prompt effect of the three cent processing tax in raising costs of soap production. By juggling limited quantities of other oils, a somewhat smaller quantity of coconut oil can be used, but the American public is educated to the type of soap that requires large amounts of both coconut and palm-kernel. Soap makers maintain that to shut off this country from coconut supplies would mean the ruination of a large part of the soap business of this country and a transfer of manufacturing operations to Canada and other foreign countries. For this reason the independence to the Philippines presents food for thought on the part of domestic soap manufacturers.

The declining use of cottonseed oil in the soap kettle has been commented upon, and other domestic oils offer no aid as substitutes. Corn, soybean, and linseed all exhibit undesirable tendencies towards rancidity. Although some quantities of soybean are used in laundry soaps, peanut is somewhat more promising, but so far its price is based upon the fact that it is largely used for edible purposes in this country.

Rise in Margarine Production

Between 1914 and 1929 production of margarine increased in the United States over 100 per cent. In times of depression curiously enough butter substitute manufacturers suffer from much smaller consumption. The price of butter declines more promptly and to lower levels than the cost of raw materials for the manufacture of margarine. The farmer and dairyman quite naturally have always looked upon margarine as an usurper, and the farming element were most influential in forcing through the processing tax on coconut oil in 1934. This led to processing taxes on several other imported oils. Thus the "big brother" soap industry was dealt a severe blow because of the dislike of a powerful political group for the "little brother" margarine. Their dislike was not tempered by the knowledge that even in good times the consumption of butter is huge compared to the total sale of margarine. Coconut oil, while the principal ingredient of vegetable-oil margarine, can be substituted by animal-oil margarine. However, the trend of recent years has been distinctly towards vegetable-oil margarine. The soft-oil ingredient in both the animal and vegetable-oil margarines is usually either cottonseed or peanut.

Even the plea of the President to Congress in 1933 to repeal the coconut processing tax, so far as it affected Philippine imports, failed. The result of this Federal planning, according to reliable soap authorities, was an increase of approximately 200 per cent. in the cost of oils and fats to the soap maker. On the other hand, even including the three cent processing tax, coconut oil price was certainly no higher in 1934-35 than during the years 1926-28, which are usually now considered the perfect normal for comparison.

Third in volume of consumption among the vegetable oils is linseed, and this brings us to a consideration

of the paint and allied uses of oils. Approximately 65 per cent. of the total linseed consumption is by paint manufacturers; about 20 per cent. is employed in the manufacture of linoleum and felt-base floor covering; and the balance distributed between oiled clothing, patent and imitation leather, printer's ink, foundry oils, putty and soft soap.

Physical Properties of Paint Oils

Oils useful in paint, varnish, and enamel must absorb oxygen quickly and at the same time form a hard, durable film, so that they are roughly divided into two classes, drying oils and semi-drying oils. Iodine values indicate their relative usefulness, the higher the iodine value, the greater the possible oxygen absorption. Perilla oil has the highest iodine value, but for other technical reasons its drying power though greater than linseed is less than Chinawood. Low cost and constant supply make linseed oil the first choice followed by Chinawood oil. Perilla finds a limited market where its characteristics are particularly adaptable for the manufacture of high gloss enamels and "baking" enamels. In favor of linseed oil, aside from the economics involved, is the fact that it spreads more evenly and exhibits little, if any, tendency to "sweat." Should the price relationship and the volume of production alter, Chinawood like perilla is capable of some substitution for linseed oil in paints, but at the present time and quite likely in the future, Chinawood will find its principal use in marine and waterproof varnishes. Soybean and fish oils, too, are often added to paint mixtures either to reduce manufacturing costs or to make special coatings where excessively exacting conditions of heat, light and exposure are met. Such a product would be a paint for smoke-stacks. For certain purposes, soybean is finding favor, and with a growing production it is likely to be used increasingly. Already it is an important ingredient in synthetic varnishes for automobile finishes which seriously threaten the reign of nitro-cellulose lacquer. Linseed, nevertheless, despite various competitors, remains the principal drying oil.

The raw material for linseed oil is flaxseed. One type of flax plant is raised where the principal product desired is linen; another is generally used when the oil is the principal product. The largest flax areas are in the Argentine, the Northwest section of the United States, Canada (that portion only just above the Northwest flax regions of the United States), India, and Soviet Russia. The market, therefore, is an international one with trading centers in Duluth, Minneapolis, Chicago, Winnipeg, Buenos Aires, Hull, and Calcutta. A definite relationship in price is maintained between the various markets.

Production of flaxseed has reached abnormally low levels in this country during recent years. In fact, production between 1929 and 1934 was well below the 10 year average. Crushing centers in this country are Minneapolis, Chicago, Duluth, Buffalo, and on the Atlantic Coast, at New York and Philadelphia. Mills

located inland operate on domestic flax while those on the seaboard usually crush and press Argentine material. Any serious upsetting of crop conditions forces the mills on the seaboard and even around Buffalo to operate on imported flaxseed, since domestic flaxseed supplies are only half, often less than half, of our requirements. The other half is normally obtained from imported flaxseed crushed at the seaboard mills.

The raw linseed is produced by three different processes, by the hydraulic press; by the expeller; and by the solvent extraction process. The rate of drying of raw oil is comparatively slow, requiring 48 to 72 hours when flowed in a thin film. Obviously this is too slow for the paint or other trades, and so-called boiled linseed oil is the article of trade. The name was derived from the now almost obsolete practice of heating all of the oil with oxides of lead and manganese, by direct heat, to a temperature sufficiently high to cause the formation of gas, thus producing a boiling action in the oil. Improvements have been made in both the method of adding the driers and in the character of the driers themselves.

The Place of Chinawood

Chinawood—or tung oil as the oil produced in the United States is called—plays an increasingly important part in paint and varnish making. As the name implies China has been the principal source of supply, and our dependence upon foreign supplies of this particular oil has been the subject of countless government and private reports. National self-sufficiency and a more diversified agriculture in our southern states have stimulated the development of a tung oil industry in this country. Already millions of trees have been set out in sections of Florida, Mississippi, Louisiana, and other sections of the South, and commercial shipments of the oil to consuming centers are a *fait accompli*. Nevertheless, while decided progress has been made in lessening our foreign dependence, we are still the world's largest importer of Chinawood oil, and this condition will probably continue for several years. The relatively low price of silver during the first years of the depression forced Chinawood oil prices to extremely low levels. Later the tinkering with silver prices by Government proclamation in this country reversed this position. The defence of the user against abnormally high prices is difficult. The lesser drying oils, such as sunflower seed, walnut and hempseed, offer some relief, particularly the first for there is important work being done in developing more acreage in this country and in improving the adaptability of the oil. A thoroughly satisfactory solution to this problem lies in the development of our domestic tung oil plantations and possibly in the introduction of oiticica oil, native to Brazil, and reported upon by the director of the Institute of Paint and Varnish Research, following his trip in 1934 to South America.

No discussion of the vegetable oils would be complete without mention of the important consumption of

palm oil in the manufacture of tin-plate. The oil is used to keep the air away from the plate before entering and after leaving the molten tin and to impart a smooth, bright finish. Producers claim that no other oil proves satisfactory for this purpose, but there is reason to believe that hydrogenated cottonseed oil might prove the equal of palm for the purpose. The normal consumption of palm oil in tin-plate manufacture is approximately 15,000,000 pounds annually. The principal use of palm oil, of course, is in the manufacture of soap. In the production of textile soaps it is practically not interchangeable. The normal consumption of palm oil in all types of soaps is close to 200,000,000 pounds per year.

Lubricants for marine engines require a small but essential supply of blown rapeseed oil which is usually blended with petroleum lubricating oils. Very recently lubricants that are mixtures of vegetable and mineral oils are finding expanding uses in various industries, and the textile, rayon and other fields are favorable ground for further development.

Rubber substitutes are produced by the reaction of sulfur or sulfur chloride with a vegetable oil, and rapeseed or corn oils are those most used. They are not interchangeable and the final product is the determining factor in the choice. There is a possibility of substituting soybean oil for corn.

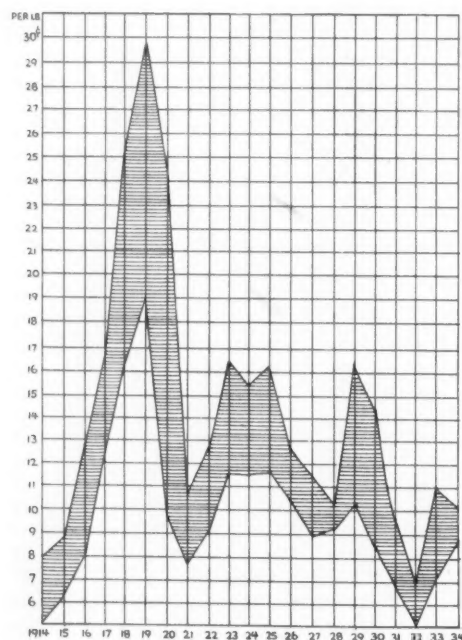
The soyabean and Manchuria were for years almost synonymous. One of the earliest attempts to free ourselves from foreign domination in the oils group was made in soybean, and now after several years of hard work and much discouragement, the fruits of such labors are now being garnered in the creditable figures of 39,129,000 pounds in the 1930-31 season against a 1924-5 production of only 2,269,000 pounds. Since then further expansion in acreage devoted to the soyabean has taken place. Again the ultimate development is difficult to forecast. Abroad soyabeans are raised primarily for edible purposes and the oil is often a by-product. Here little foodstuff demand has been found for the beans or the meal. The price of the oil for industrial purposes will necessarily be dependent upon what final relationship in these uses can be established. At present the total factory consumption is relatively small compared with the other major vegetable oils and in 1934 amounted to only 20,000,000 pounds.

Uses of Castor Oil

Castor oil consumption has in recent years totalled approximately the same as soybean. This oil is of special interest because of its importance in the production of sulfonated oils, vital in both the textile and tanning industries. Corn oil is also used in a very minor degree in the manufacture of sulfonated oils, and an inferior sulfonated oil can be made from rapeseed. Castor oil is also widely used as a plasticizer and with the aid of the chemist improved derivatives are being introduced for the same purpose. Castor oil

is interesting further because of the relative stability in price.

The confectionery and baking industries are large consumers of vegetable oils, approximately 300 million pounds being consumed in the group technically designated as "Other Edible Products." In this group confectionery and baking are important. Because of their keeping qualities, high melting points, quick setting and rapid melting without stickiness or greasiness, and the feeling of coolness they impart to the taste, the oils most generally used for fillings, coatings, and hard, chewy candies are coconut and palm-kernel in the form of hard or soft butter.



High and low prices for linseed oil over a period of 20 years.

The ramifications involved in the supplies and uses of the vegetable oils are indeed numerous. Nevertheless, all of the oils are governed by similar forces so that an understanding of the general principles is a great aid in the study of any particular oil. The chemical uses of these materials are increasing. The last few years have been marked by a wide-spread gain in the quantitative knowledge of the oils, less guessing and less rule-of-thumb methods and more exact chemical knowledge of the chemical structure of the oils. To the ancient process of saponification has been added within the past quarter century sulfonation and hydrogenation, and still more recently polymerization. These processes have frequently turned topsy-turvy the established economics of the oils market. More recently we have the introduction of the higher fatty alcohols as soap substitutes or as definite improvement over soap for certain purposes. Though made initially from oils their remarkable detergent powers are powerful enough to cause a veritable revolution in oil economics.

Industry's Bookshelf

New World of Chemistry, by Bernard Jaffe, 566 pages. Silver, Burdett & Co., 39 Division st., Newark, N. J. \$1.80.

The author approached the task of writing a high school text-book in chemistry from several new and novel angles. He maintains, for example, throughout a balance between the necessary factual material of chemistry and the stimulating material relating to the great achievements of men and women of science. He places great emphasis on the human side of chemistry. These and other desirable viewpoints are constantly stressed for the one purpose of making the book more usable, more readable, more interesting and more instructive.

Chemistry and Technology of Wines and Liquors, by Karl M. Herstein and Thomas C. Gregory, 359 pages. D. Van Nostrand Co., 250 4th ave., N. Y. City. \$5.50.

A very practical book for those engaged in liquor production. From the selection of raw materials to the final steps of ageing and blending, it carefully explains the essential manufacturing steps. Methods of analysis and tests, formulae, foreign as well as American practises, are given in full detail.

The New Monetary System of the United States, by Ralph A. Young, 147 pages. National Industrial Conference Board, N. Y. \$2.

By setting our recent monetary laws in deadly parallel with those they revised or replaced, Dr. Young has done a fine and much needed task in making perfectly clear what these changes are and what their effects will be. It is a book that anyone can understand on a vital subject that we should all comprehend very thoroughly; but which too many do not understand at all. Put it on your list of obligation reading.

Research, by T. A. Boyd, 319 pages. Appleton-Century, \$2.50.

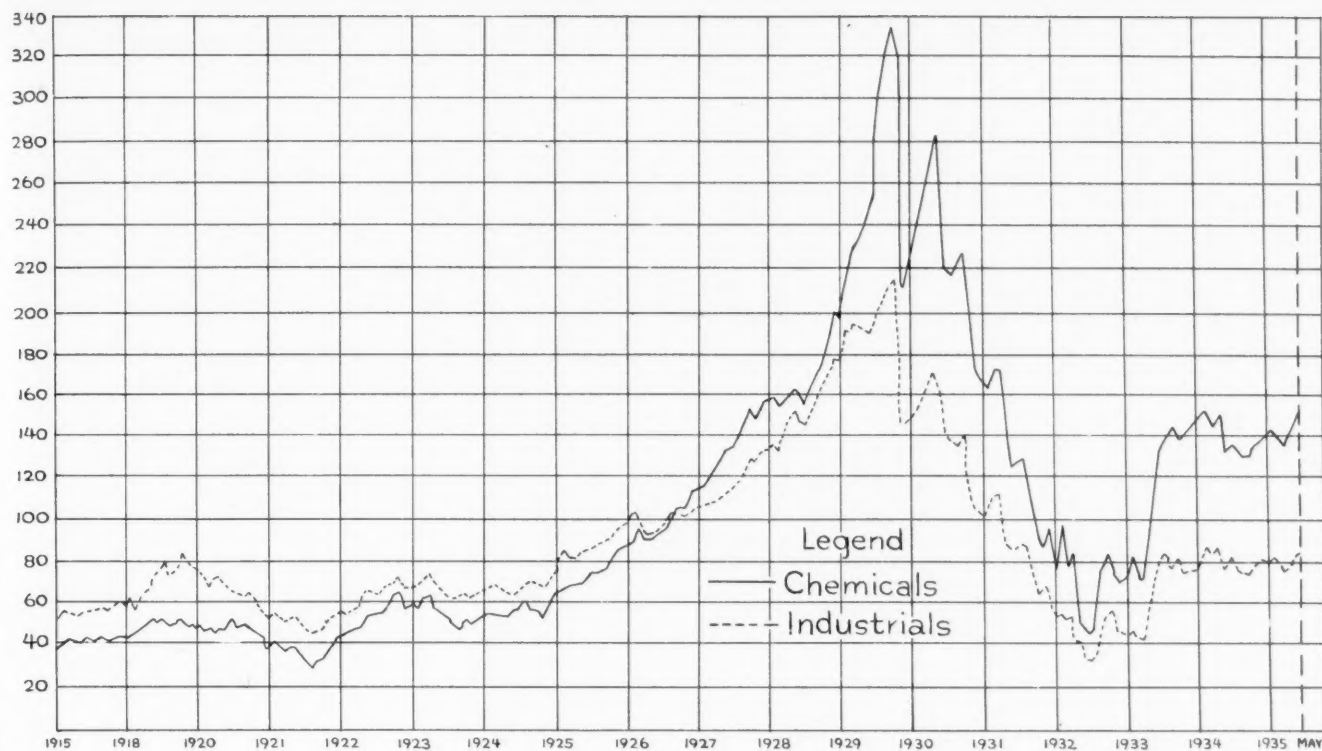
A spirited account of research, at once a record and a romance, by a chemical engineer whose professional life has been lived in the General Motors laboratories. Though a bit sugary for adult taste, this book has a wealth of practical experience in research work packed between its covers, and there is much solid information on organization, financing, and planning of real value to executives and laboratory directors. Its greatest usefulness, however, will be to the young scientist considering research as a career and to the old manufacturer appraising the results that he might expect from a research program.

A History of Industry, by Ellen L. Osgood, 532 pages. Ginn, Boston. \$1.72.

First class adult education for the technician and the businessman, who seek an easy means of acquiring an historical background for the pressing economic problems of today, is furnished by this readable, comprehensive text-book. The story of industry is told sincerely, and the well selected book lists for supplementary reading direct one to standard works on special topics and to the best advocates of both sides of controversial subjects.

The Spirit of Chemistry, by Alexander Findlay, 510 pages. Longman. \$4.

A new edition of what is still the best chemistry text-book written upon the historical basis, with additions bringing it up to date with modern chemical knowledge and much new matter on coal-tar dyes and perfumes. With broad culture and in most readable style chemistry is presented soundly but as a part of the larger story of our historical and economic life. It is the ideal book for the chemical salesman or executive who wants to brush up on chemistry, and the most useful text for the teacher of general introductory courses in school or college.



Chemical Securities During the Depression

By Fred. A. Hessel

A MAN invested in the chemical industry in 1918 and kept his money there during the minor depression of 1921, and during the early twenties when chemical stocks were still selling comparatively lower than other industrials, began to reap his reward in 1927. By 1929 he witnessed a phenomenal increase in the value of his holdings, phenomenal even for 1929. If he still held on when the crash came and during the dark days of 1932, he has again seen his judgment vindicated.

"Chemicals" did not go as low as "industrials" in 1932. Their pickup was much quicker in 1933 and they have soared way ahead since then. All this may readily be seen in Table No. I, which gives a comparative graph of the price movement of industrial and chemical stocks. Here we see that chemicals, lower in value than industrials until 1927, when they began to forge ahead, were selling by 1929 over fifty per cent. higher than industrials. The low point of both was reached in 1932, from which industrials have recovered only as far as 1925 status, while chemicals are back to where they were in 1927.

Stock prices are only symptomatic. To see the real condition of any industry we must look at the balance sheet. Here again the chemical industry makes a splendid showing, as may be seen in Table II giving in comparative form the status of a number of chemical companies as of the end of 1929 and 1934 as well as that of four outstanding industrial leaders for the same period. While the current position of only half of the chemical companies show in 1934 an improvement compared with 1929, without exception all are in a strong financial position.

Fixed Assets Compared

A few chemical companies, such as du Pont, Freeport Texas and Texas Gulf are carrying fixed assets at a much higher figure in 1934 than 1929. This is because these companies have made substantial additions to their properties during this period. On the other hand, most chemical companies are today carrying their fixed assets at much lower figures than in 1929 although their plants have been kept up to date in capacity, not only undiminished, but in many ways materially increased. This is particularly true of Air Reduction,

TABLE II Name of Company	Current assets for fiscal or calendar year ending in		Fixed assets for fiscal or calendar year ending in		Other assets for fiscal or calendar year ending in	
	1929	1934	1929	1934	1929	1934
Air Reduction	\$ 14,789,262	\$ 16,431,787	\$ 12,395,213	\$ 3,850,961	\$ 4,277,047	\$ 10,819,745
Allied Chemical	157,776,046	88,632,875	202,315,812	225,878,949	27,521,661	105,609,931
American Cyanamid	14,205,162	21,827,776	35,727,189	22,567,098	7,477,510	10,994,027
Columbian Carbon	8,720,132	6,722,730	29,239,402	34,888,718	1,123,445	5,703,899
Commercial Solvents	9,611,719	14,937,017	3,050,169	1,780,090	570,882	501,848
Du Pont	106,996,046	124,025,723	214,936,556	275,413,934	220,054,111	231,680,624
Freeport Texas	10,159,472	7,680,833	5,627,994	7,195,645	847,533	2,920,348
Hercules Powder	18,215,617	17,587,144	20,808,071	16,723,310	5,006,362	7,859,109
Mathieson Alkali	4,510,391	3,180,188	15,348,360	22,286,837	674,894	551,928
Monsanto	6,832,091	9,603,411	17,128,609	15,646,473	372,462	1,654,834
Texas Gulf	8,894,572	11,159,308	15,186,616	35,386,603	8,795,266	14,849,121
United Carbon	6,056,398	2,996,710	10,708,828	19,439,248	1,526,404	1,750,862
U. S. I. Alcohol	17,407,941	13,090,952	22,379,433	283,501	1,341,113	1,655,269
Union Carbide	128,582,434	74,886,351	173,584,941	162,023,322	14,450,412	15,547,887
General Electric Co.	255,876,006	177,269,049	51,742,354	39,852,193	184,038,655	160,818,882
General Motors	368,960,944	365,844,369	678,728,900	607,557,650	277,199,918	295,130,005
United States Steel	562,232,507	420,122,301	1,541,492,587	1,626,143,781	182,458,560	37,846,203
Standard Oil N J	783,188,259	608,939,709	776,889,416	1,082,380,164	207,599,878	250,390,101

Name of Company	Current liabilities for fiscal or calendar year ending in		Other liabilities in- cluding Pref. stock† for fiscal or calendar year ending in		Percentages current liabilities to current assets for fiscal or calendar year end- ing in		*Earnings per share Common stock for fiscal or calendar year ending in	
	1929	1934	1929	1934	1929	1934	1929	1934
Air Reduction	\$ 1,098,005	\$ 1,971,507	\$ 2,468,171	\$ 1,711,686	7.4%	12.0%	\$ 7.75	\$ 4.98
Allied Chemical	9,520,724	7,690,954	170,996,505	240,234,463	6.0%	8.7%	11.43	6.16
American Cyanamid	4,167,772	5,998,826	18,614,981	9,995,111	29.3%	27.5%	.82	.99
Columbian Carbon	1,335,983	831,920	15,037,439	20,919,683	15.3%	12.4%	6.81	3.92
Commercial Solvents	1,702,190	1,135,039	113,719	46,206	17.6%	7.6%	1.39	.89
Du Pont	22,398,366	19,155,627	167,883,292	211,820,017	20.9%	15.5%	6.53	3.63
Freeport Texas	3,011,472	2,276,882	.....	1,770,715	28.6%	29.6%	5.13	1.76
Hercules Powder	1,325,122	1,265,940	14,374,332	15,518,634	7.3%	7.2%	5.87	3.79
Mathieson Alkali	1,146,195	1,413,128	2,830,878	2,962,549	25.4%	44.4%	2.59	1.20
Monsanto	1,379,342	2,062,577	10,634,061	9,187,629	20.2%	21.5%	1.33	3.05
Texas Gulf	1,305,926	1,531,540	3,831,967	2,337,296	13.7%	11.7%	4.23	1.81
United Carbon	1,049,257	828,678	3,105,683	10,139,069	17.3%	27.7%	2.62	3.55
U. S. I. Alcohol	3,038,769	1,831,177	266,763	1,236,055	17.6%	14.1%	12.63	4.04
Union Carbide	15,547,720	12,009,815	20,108,700	15,826,300	12.3%	21.1%	3.94	2.28
General Electric Co.	50,216,372	17,461,337	89,552,716	68,858,062	19.6%	9.9%	2.24	.59
General Motors	117,693,163	90,198,504	391,212,527	473,224,744	31.9%	24.9%	5.49	1.97 deficit
United States Steel	121,358,042	55,986,555	605,793,370	547,974,881	21.6%	13.3%	21.19	5.39
Standard Oil N J	170,109,461	201,774,363	412,570,673	644,471,373	21.7%	33.2%	4.76	1.76

* For comparison purposes common stock outstanding as of 12/31/34 or at end of fiscal year ending in 1934 has been used for calculating earnings per share of common stock for both the year 1929 and that of 1934.

† Excluding common stock and surplus.

Commercial Solvents, Hercules, Monsanto, Union Carbide and Cyanamid.

In earnings per share (Table II) a number of stocks of the chemical companies have records that are very satisfactory. While lower in most cases than in 1929 the earnings of chemical stocks compare favorably with those of other industrial leaders. Moreover, some like United Carbon, Monsanto and Cyanamid earned more per share in 1934 than in 1929.

Impressive proof of the healthy condition of the chemical industry is found in Table Three, showing the average percentage of return on invested capital in 1929 and 1934 for chemicals and other groups of industrials:

TABLE III Return of Invested Capital		
	1929	1934
Chemicals	12.7%	9.6%
Steel & Iron	8.5	0.0
Petroleum	8.8	2.

TABLE III (Continued)

	1929	1934
Copper	15.	.01
Automobiles	22.2	7.9
Cotton Manufacturing	5.9	1.9
Electrical Equipment	14.8	2.2

Very clearly, from the capital investment point of view, the chemical industry is more attractive than a number of other industries.

Salt—A Road Hardening Agent

The recent floods in N. Y. State provided a severe test for an experimental stretch of salt highway being sponsored by International Salt Co. Common rock salt will harden down a clay and gravel roadway almost to the density of concrete, according to the research director of this company. Some 100 miles of the "salt-soil-stabilized roadway" have been laid in different parts of the country to test its efficiency under varying conditions.

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are helping research chemists to develop new processes and improve present methods. These amyl compounds are accomplishing unusual results

- In the lacquer industry
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- As raw materials for synthetic resins
- As powerful odorization agents for natural gas
- In the dye and textile fields
- In pharmaceuticals
- In dry cleaning
- In insecticide work
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* Pent-acetate

* Pentaphen (Para-Tertiary

Amyl Phenol)

Monoamylamine

Diamylamine

Triamylamine

Amyl Mercaptan

Diamyl Sulphide

Normal Butyl Carbinol

Iso-Butyl Carbinol

Secondary Butyl Carbinol

Methyl Propyl Carbinol

Diethyl Carbinol

Dimethyl Ethyl Carbinol

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Amyl Naphthalene

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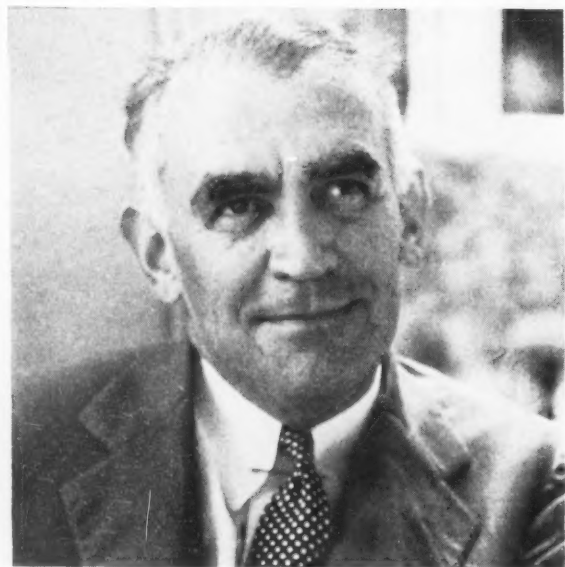


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CHEMICAL

The Photographic Record



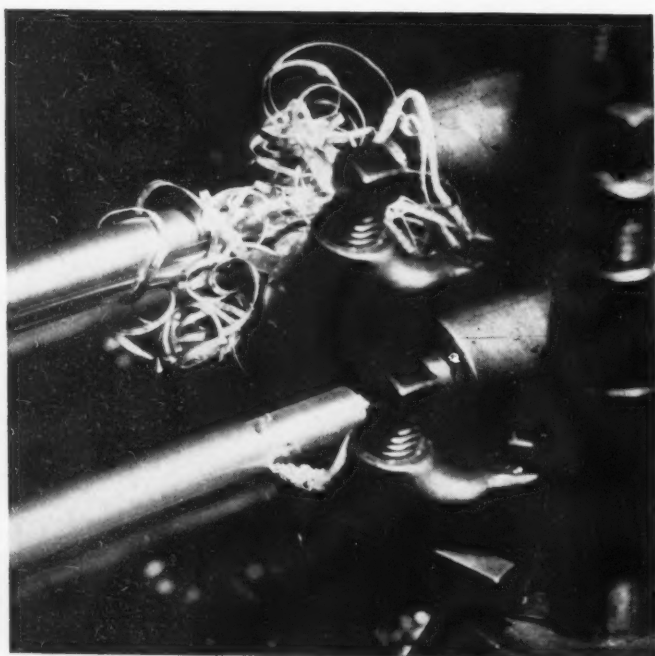
Charles Belknap, President, Merrimac, note also in executive control of the Swann subsidiary of Monsanto.



Above, Princeton confers an honorary Doctor of Science upon the Nobel prize winner in chemistry, Dr. Harold C. Urey, of Columbia University. To the left, the Waterloo at Skytop—the tenth tee, a frequent fatal mental hazard.



Right, portrait of the late David Wesson, to be presented to the Chemists' Club, New York, by a group of his friends. Below, turning aluminum—a graphic demonstration of the superior machining qualities of the new aluminum alloys as compared with pure aluminum shown in the upper rod.

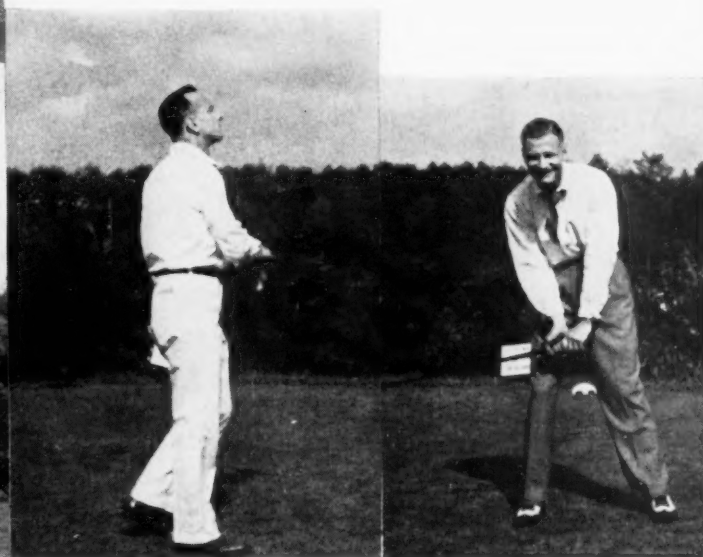
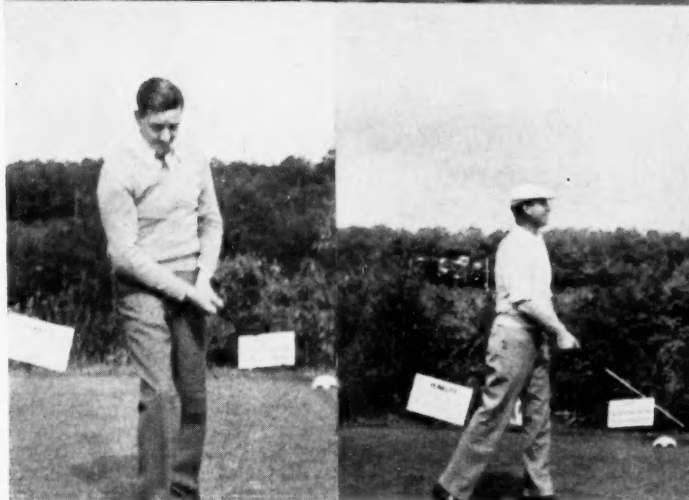


NEWS REEL

of Our Chemical Activities



Appearances to the contrary, Lou Neuberger (Warner) and George Handel (Cincinnati Chemical) are not competitors but good friends.



Chemical golfers in action. Above, top row, left to right, P. G. Mumford, Jr. (Commercial Solvents); F. Miller Fargo (Calco); Bottom row, left to right, William Mueller (Commercial Solvents); William F. Zipse (Geigy); George A. Benington (Mutual); Philip M. Dinkins (American Cyanamid & Chemical).

Below, Alfred F. Lichtenstein (President, Ciba); to the right, George Merck (President, Merck & Co.).



Below, left, August Kochs (President, Victor Chemical Works); below, A. B. Chadwick (Solvay).



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TO AN END!**

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CAUSTIC POTASH ●

Solid—Fused 88-92%. Drums 550-700 lbs.
Liquid—Baume 45°. Tank Cars—Drums 675 lbs.
Flake—Ground. Drums 100-225-550 lbs.
Walnut Size. Drums 100-225-550 lbs.

CHLORIDE OF LIME ●

35-37% (Bleaching Powder). Drums 100-300-850 lbs.

CAUSTIC SODA ●

Solid—Fused. Drums 700 lbs.

CARBONATE OF POTASH ●

Calcined, 80/85%, 96/98%, 98/100%.
Highly refined, 99/100%.
Liquid, Water White, Sparkling Clear,
guaranteed minimum of 47% K_2CO_3 .

IRON CHLORIDE ●

C. P. Lumps. Bbls. 500 lbs.

SULPHUR CHLORIDE ●

Drums and Tank Cars.

MILLED GUMS and REFINED WAXES ●

Up-to-the-minute equipment recently installed in our Factory at Jersey City puts us in position to serve you to particular advantage on Granulated Gum, Arabic and Karaya, Grained Gum in all meshes, freed from powder and bark . . . also on Refined Beeswax, Ceresine Wax and Carnauba Wax.

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New Products and Processes

A Digest of the Current Literature for the User of Chemicals

Metal Cleaning By Electrolytic Methods

During a recent exhibit arranged by the Society of Automotive Engineers in Detroit, Mich., the Detroit Edison Company, which supplies electric power in the city of Detroit, staged a very simple demonstration of electrolytic cleaning as applied to steel. As in most electrolytic cleaning, the steel to be treated was suspended from a copper bus-bar so as to be completely immersed in the electrolyte. The latter is a caustic solution similar to that used in other metal-cleaning operations, a solution universally known of. As compared to most electrolytic cleaning, the chief difference is that, instead of using a fixed polarity, the latter was changed from positive to negative and back again at regular ten-second intervals, thus bringing about an alternate evolution of hydrogen and oxygen at the steel surface to be cleaned.

The net result was not only an unusually rapid and thorough cleaning of the metal, but the production of a bright surface free from darkening action and water marks, providing, of course, the metal was promptly given a thorough rinse in running water, such as usually follows any caustic cleaning.

In the demonstration the process was used to strip from the sheet metal a coat of baked enamel applied over a baked oxide primer. Soaking for several hours in the same solution without applying the 2.5-volt potential, showed very little effect on the enamels, yet the electrolytic cleaning was effective within a few minutes' time. Other tests using the same method of stripping extremely resistant baked enamels are reported to have cleaned in about five to ten minutes samples which the strongest alkaline cleaners offered by some makers of such products have failed to remove satisfactorily after eight or ten hours in a boiling hot solution. Because of the reduced time required, it is possible to handle the stripping on a slow-moving conveyor which would not be feasible where hours are required for the cleaning to be effective. In addition, the cost of electric current is quite low, even though a current density of 50 amperes per sq. ft., which is found most satisfactory, is recommended, because the time required is so short.

Chemicals used in the cleaning solution employed by weight percentage are as follows:—

NaOH	63	per cent.
Na ₂ PO ₄	29.5	" "
Na ₂ SiO ₃	7.5	" "

In water, the proportions per U. S. gallon are as follows:—

NaOH	13.6	oz.
Na ₂ PO ₄	6.38	"
Na ₂ SiO ₃	1.62	"

It is stated that the first two chemicals named act as current carriers as well as emulsifiers, and that the third helps in the free rinsing of the work.

It is considered possible that the same method may be employed to advantage in cleaning metals prior to electroplating, but precise information on this point is lacking at present. According to information given out at the booth where the process was demonstrated the process was developed in the interest of current sale by the company which had the exhibit, and no payment of royalties for the use of the process of modifications thereof is required.—*Synthetic and Applied Finishes*, July, '35.

Rubber

New Latex Uses and Technique

Attention is called to recent research which reveals the fact that spun latex threads are extremely applicable for the production of rubber bands. Because of their composition, these threads are stronger and can be made in unlimited length.

U. S. Patent No. 1,990,803, issued to the Spray Engineering Company, covers the spray application of latex in the lasting of shoes.

Shaped articles are made on molds of metal or glazed porcelain by dipping the molds into a concentrated aqueous solution of calcium chloride and wiping off the excess liquid. The forms having a film of coagulant on the surface, are then dipped into the following concentrated latex composition:

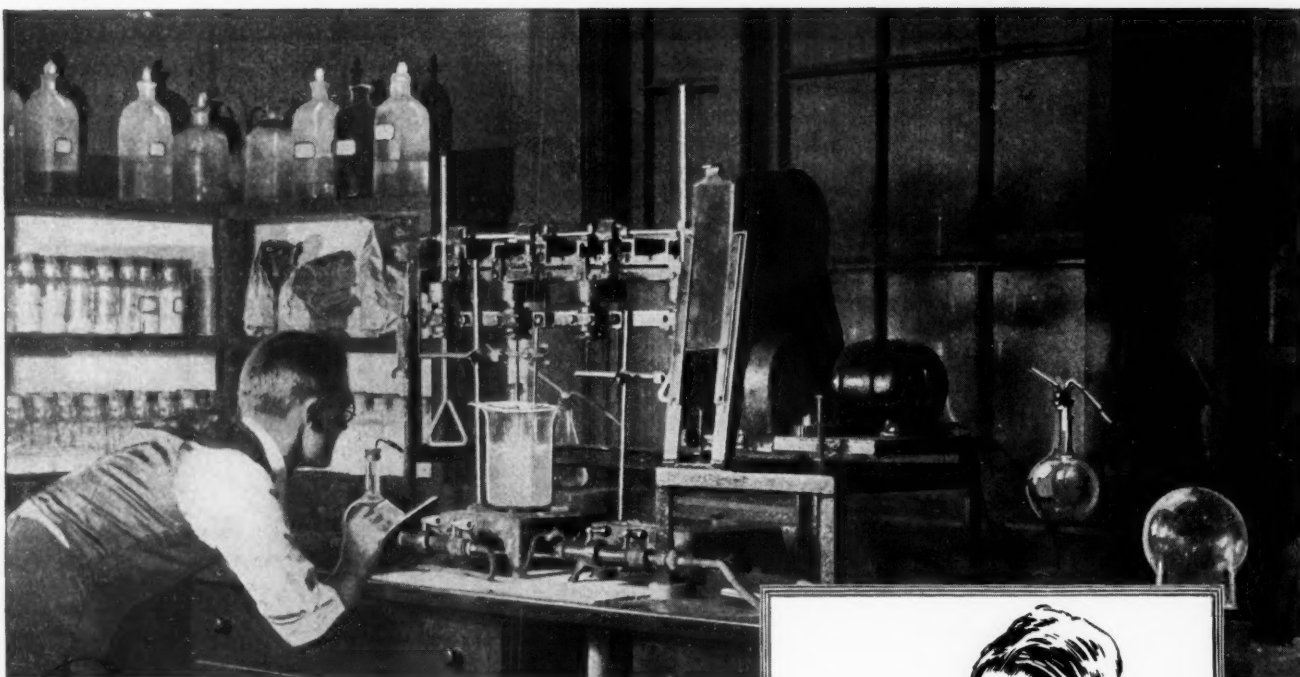
	Parts by Weight
Rubber (as ammonia-preserved latex)	100
Sulfur	2
Zinc oxide	10
Whiting	5
Cotton-seed oil	4
Wax	2
Zinc pentamethylene dithiocarbamate	1

The coagulant, diffusing out into the latex from the film on the surface of the form coagulates a uniform layer of the rubber composition. The form is removed from the latex after about five minutes; the coagulated rubber is dried, vulcanized, and stripped from the form. If a greater thickness of rubber is desired, the form is left in the latex for a longer period of time, and if a thinner deposit is desired, it is removed sooner.—*India Rubber World*, July 1, 35, p. 40.

Ceramics

New Ceramic Colors

Ceramic Laboratory, R. & H. Chemicals Dept., du Pont, announces three new color developments of interest to the porcelain enameling trade. The new Cadmium Selenide Reds have improved clarity of tone, greater stability under repeated firings, and maximum strength, and are available in a wide variety of shades from deep cherry to a light orange. The new Black Oxides have increased intensity and are absolutely jet in the ground coat. The new Brown Oxides are highly



Building for the FUTURE on Foundations of the PAST

Nearly a century of advancement!

Back when Andrew Jackson was "Old Hickory" to the people and the steam engine was ushering in the era of the railroads, Eugene Grasselli founded the first sulphuric acid plant west of the Alleghenies—in 1839. The Grasselli Chemical Company is old in experience but young in spirit and outlook.

96 years of continuous research—development—service! A long span of fruitful years in creating better chemicals for American industry and agriculture. On those honorable foundations of the past, GRASSELLI is building for the future, ever striving to discover the new and improve the old.

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San Francisco, 584 Mission Street			Represented in Canada by CANADIAN INDUSTRIES, LTD.			
Los Angeles, 2260 East 15th Street			General Chemicals Division—Montreal and Toronto			



On December 1, 1928, The Grasselli Chemical Company and the DUPONT organization (founded even earlier, in 1802) united their interests. Although continuing under its own name, Grasselli's extensive line of Chemicals is now backed by two of America's oldest, most experienced and best equipped chemical organizations.



pure in color when used in proper frits, and of increased strength. They are stable over a wide temperature range, a feature of special importance for enameling cast iron where there is a wide variation in the weight of the castings.

Lead-Free Cast Iron Enamels

A new series of lead-free cast iron enamels, which are a perfect match in whiteness for sheet iron enamels, is announced by The Porcelain Enamel & Mfg. Co., Balto., Md. These new frits are more workable than the old lead-bearing types as they require no special treatment.

Resins

For Larger Moldings

2260 K Black, for larger moldings of the de luxe type, has been announced by General Plastics, Inc. New material has a higher than average impact strength and is being used on applications where the finest types of moldings are desired. Its impact strength is approximately 33 1/3% greater than the general run of phenolic molding compounds. Because of this and the excellent finish obtained, it is adaptable for instrument cases, adding machine housings, typewriter parts, boxes, and containers to withstand rough usage, as well as many decorative parts and products. Compressive strength is 29,000 PSI; heat resistance 400° F.; weight 22.2 gms. per cu. in.

Resins From Low Temperature Tar

One of the possible uses of a large portion of the constituents of low temperature tar is a raw material for the production of synthetic resins. The Fuel Research Board (England) in cooperation with the National Chemical Laboratory has had this problem under investigation for some time according to *The Chemical Age*, June 1, '35. A very important discovery is that certain synthetic resins, not derived from low temperature tar, can be used to remove the inorganic constituents from sea-water.

Inks

Non-Tarnishing Gilt Ink

To prevent tarnishing of gilt ink mention is made that additions of barium and calcium bicarbonates which have no adverse effect on normal paper sizes, cause stabilizing conditions in the sheet, so that none of the chemicals exert any tarnishing influence upon the metallic powder of gilt ink when it is applied. The metallic constituents of ink of this type are finely powdered alloys of copper, zinc, and aluminum. *Ontario Research Foundation Bulletin* further reports that this effect is probably due to the union of any sulfuric acid found with the barium salts.

Effect of Inks on Paper

The effect of different inks on several types of paper has been determined by E. W. Zimmermann, C. G. Weber, and A. E. Kimberley (*Jour. Research Nat. Bureau Standards*, 1935, 14,463) with a view to finding an ink stable enough for the writing of permanent records. Inks showing the best tests were those containing ammonium ammonium-oxyferrigallate prepared according to Silbermann and Ozorovitz's method (*Chem. Zentrbl.*, 1908, 1024).

Concrete, Cements

Light-weight Refractory Concrete

A new type of Firecrete for casting light-weight refractory concrete on the job has been announced by Johns-Manville, N. Y. Known as "L. W. (or Light-Weight) Firecrete," new

product is composed chiefly of high alumina clay calcined at high temperatures. The resulting concrete weighs only 75 lb. per cu. ft. Under continuous operation at 2400 deg. F., shrinkage is so slight as to be entirely negligible. It has withstood the most severe alternate heating and cooling tests without spalling.

Cement for Many Uses

A treated Portland cement of great fineness, which colors and fills concrete floors, carries the name of "Colortread," and is being manufactured by The Tremco Mfg. Co., 393 E. 131st St., Cleveland, O.

Thermo Plastic Cement

A pyroxylin product which dries very quickly, and can be applied by hand brushing, air brushing, or pouring. Gilbert Spruance Co., Phila., Pa., manufacturer, claims it can be used as an adhesive or radio cone paper, so it will stick to the spider.

Metals

Revealing Crystallographic Structure

Stainless steels are often difficult to prepare satisfactorily for metallurgical examination as they resist the attack of the reagents usually used for etching, and a new method for revealing the crystallographic structure has been devised by the U. S. Bureau of Standards. It consists of etching electrolytically in a solution of oxalic acid, 10 gm. in 100 millilitres of water; product to be etched forming the anode and a piece of platinum the cathode. Current is supplied by four dry cells in series or by a six-volt storage battery. This solution is relatively rapid in etching action and does not stain the product.

Alloy Expands at Same Rate as Glass

An alloy steel which expands under heat at the same rate as glass has been added to Allegheny Steel's line. The first commercial application was for electrical connections in the base of the new metal radio tubes recently put on the market.

Coatings

New Lacquer for Leather

Superflex Leather Clear Lacquer No. 20914 for use on leather is a product of C. W. Haynes Lab., Inc., West Springfield, Mass. It is described as a clear transparent lacquer base, possessing extreme flexibility and unusual adhesion. It will not crack white nor show white upon continued creasing; is extremely long in life; and dries rapidly to a wax-like gloss. Product is being used by many firms here and abroad, for riding boots, high grade leather books, purses, valises, brief cases.

New Acid-Resisting Coating

Rubalt "RA," a combination of rubber and bitumen, is an amazingly waterproof and acid-resisting protective coating, making it of special value in the chemical equipment field, such as for filter presses, etc. Alfred Hague & Co., 130 W. 42d St., N. Y. C., are the manufacturers.

Glass

A Plate Glass That Will Bend

It is reported that Libbey-Owens-Ford will shortly offer a flexible plate glass, which can be twisted and bent and is considerably stronger than ordinary plate glass. On breakage, it crumbles into fragments instead of slivers. Its resistance to extremes of cold and heat suggests its use for furnace doors, etc.

Perchloron

SUPER-TEST CALCIUM HYPOCHLORITE

Exceptionally high
Chlorine content . . No
return containers to
bother with.. Requires
less storage space..
Exceptionally stable . .
Rate of decomposition
less than 3% a year.

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Chemical Specialties

Efficiency of Derris and Pyrethrum

Minute quantities of derris and pyrethrum kill many insects feeding on market garden crops, and are less likely to leave harmful residues than most inorganic insecticides now used. In tests recently completed by the U. S. Dept. of Agriculture, dusts made by diluting derris root with tobacco dust, talc, or clay were just as effective as arsenical compounds in controlling three common species of cabbage worms in widely separated parts of the country. Pyrethrum dust, mixed with tobacco dust or hydrated lime, preferably the former, controls the celery leaf-tier.

Metal Cleaner

A liquid, sheet-metal cleaner for steel, aluminum, terne plate, galvanized steel, etc., containing phosphoric acid, compatible solvents and other ingredients necessary to produce efficient and effective cleaning, and to impart rust-inhibiting properties thereto is on the market under the name of Sol-Klean. Manufacturer is the Industrial Chemical Products Co., Sylvester and M. C. R. R., Detroit, Mich.

Miscellaneous

Wood Waxing to the Core

In a process whereby wood can be waxed to its core instead of merely on the surface, the wood is "embalmed." First step is a chemical treatment that makes it permeable to the melted wax. Beeswax and stearin are among the waxes so far successfully used. Dr. A. J. Stamm, U. S. Forest Products Laboratory, Madison, Wis., inventor of the process, states that rosin, linseed oil and other substances that will mix with wax can also be used. Process also renders wood waterproof, and it will resist warping, shrinking, checking, and cracking. Promising possibilities are permanently waxed floors and furniture.

Possibilities of Sorghum

A study of the possibilities of sorghum cane in Mississippi is to be undertaken by the Department of Agriculture. Particular attention will be given the problems of processing the juice as present methods are said to be expensive and unsatisfactory. The Department was urged to set up an addition to the starch plant at Laurel for experiments in the treating of sorghum and cane juices.

In Place of Beeswax

Adolphe Hurst & Co. have started production of "Witol Wax," a product of good white color, controlled uniform quality, amorphous, and having practically the same physical properties as beeswax. Company claims this new wax can be mixed readily with other waxes and oils and is an excellent material for acid-proof lining.

Novel Cellophane Uses

Fur coat bags of laminated Cellophane, a combination of laminated Cellophane and scrim, have been developed by the Fabricated Products Co., and are being bought by store fur departments and by furriers to protect coats from dust. The same firm is also offering a Cellophane tuxedo bag which, by keeping out air and dust, eliminates danger of moth damage. It is also being used for dish covers, mattress covers, dress covers, hat and handbag covers.

Solidified Gasoline

Solidified gasoline—"dry" and non-explosive, which can be kneaded in your hand like a chunk of art gum—is announced by the Daniel Guggenheim School of Aeronautics, N. Y. U. New fuel eliminates the fire hazard in air transporta-

tion, and is called "Solene." It burns slowly, somewhat like wood. When used in engines no carburetor is needed, as the gasoline can be made to pass from the solid to the gaseous state without an intermediary liquid stage.

Textiles

New Bakelite Textile

A remarkable new Bakelite textile, developed by Johnson & Johnson, for use in the rainwear field is being confined exclusively to The Arrow Importing Co. In addition to being 100 per cent. waterproof, material is resistant to oils, acids, chemicals and alcohol, and will not crack, chip, harden or stick together if put away when wet, as yesterday's raincoats were wont to do.

New Textile Waterproofing Process

From abroad comes word of a new patented process, which results in excellent waterproofing of fabrics and paper. Operation consists of impregnating the fabric with metallic soaps, *i.e.*, either zinc or aluminum soap, then treating them either during the impregnation or afterwards with a solution of formaldehyde.

DuPont Offers New Dyes

The Dyestuffs Division of du Pont have just placed five new products on the market:

Acele Diazo Navy RD, a dyestuff produced especially for application to acetate fiber yarns and piece-goods to produce an economical navy blue. Extremely well dispersed so that uniform results can be assured.

Sulfogene Red Brown 6RCF, a copper controlled sulfur color producing bright reddish shades of brown. An excellent self-color and useful as a base for chocolates and red browns on all types of cotton materials, particularly where fastness to light is of importance. When properly oxidized it will not give the shade variations on aging or be affected by atmospheric conditions as most of the red sulfur browns. Possesses good general fastness and is well suited for application in all types of machines.

Ponsol Golden Orange 4G Paste (Pat.) is a yellowish shade of vat orange differing chemically from any product previously marketed. It is a cold dyeing type, chiefly of interest because of excellent fastness to light and weather. Also, it has very good fastness to chlorine and washing and good fastness to boiling in the presence of mild alkalies and soda ash.

Sulfanthrene Black PG Double Paste for the production of jet shades of black on cotton, rayon, pure and tin-weighted silk and acetate fibers, is fast to light and power laundry both with and without chlorine. Having been prepared especially for printing, it is non-drying, non-foaming and grit-free; moreover, it reduces easily and oxidizes rapidly. Particularly suitable for the production of grays as well as for shading purposes, producing consistent shades of grays or blacks under both moist and dry aging conditions.

Diagen Blue MGR and Diagen Blue MGR 20% Solution are chemically similar to each other, differing only in physical form. Diagen Blue MGR produces dark reddish shades of blue of good fastness to light and washing. Like the other products of the Diagen group, this color produces, economically, bright fast prints on both cotton and rayon.

Also being marketed by General Dyestuff are:

Algisol Blue IBC Paste producing clear, blue shades of excellent fastness properties so far not obtainable with any other Algisol Blue. Prints can easily be fixed according to any of the customary methods, also alongside Rapidogens. Also well suitable for resist styles.

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Booklets and Catalogs

Chemicals

- A238. Bakelite Corp.**, 247 Park ave., New York, N. Y. A special edition of "Bakelite Molding Technic," complete, detailed handbook of molding practice, has been published to meet the needs of the molding technician and the working molder. Covered with black Bakelite laminated stock, the booklet contains thirteen chapters of practical molding knowledge. The section "Definition and Terms" translates technical language into everyday terms for the lay reader.
- A239. Bakelite Corp.**, *Bakelite Information* for June advocates use of plastics for use in the home workshop. Laminated Bakelite is particularly suitable for amateur construction. Resinoid cements are also available.
- A240. Bakelite Corp.**, July *Bakelite Review* features new flexible laminated REVOLITE, now available for insulation packing, acid proof linings and many other uses.
- A241. F. L. Bodman**, 253 Bourse Bldg., Fourth between Chestnut and Market, Philadelphia. A complete line of fine medicinal chemicals.
- A242. Commercial Solvents Corp.**, Terre Haute, Ind., July *Alcohol Talks* discusses the "personality" of butyl alcohol. Humorous, easily read, butanol is presented as a willing worker, an "excellent hostess," mother of many derivatives.
- A243. Detergent Products Co.**, Atlanta, Ga. "Theory and Use of Alkalies and Control of pH," explains, in simplified manner, chemical changes involved in use of textile detergents.
- A244. Dow Chemical Co.**, Midland, Mich. "Condensed Financial Report," May 31, 1935.
- A245. E. I. du Pont de Nemours & Co.**, Wilmington, Del. R. & H. Chemicals Dept. Leaflet on cyanides for gold and silver plating. Basic solution formulae and solution analysis.
- A246. E. I. du Pont de Nemours & Co.**, R. & H. Chemicals Dept. "Quarterly Price List."
- A247. E. I. du Pont de Nemours & Co.**, Fabrikoid Division, Empire State Bldg., N. Y. City. June, July *Contemporary Books* features Bruce Rogers' recommendation of Fabrikoid for book binders.
- A248. Electro Bleaching Gas Co.**, and **Niagara Alkali Co.**, E. 41st st., N. Y. City. June *The Pioneer* discusses present status of PWA water works projects, of interest particularly to men in sewage disposal.
- A249. Fritzsche Bros., Inc.**, 70-80-82-84 Beekman st., N. Y. City. July wholesale price list with brief descriptions of certain products.
- A250. Givaudan-Delawanna, Inc.**, 80 5th ave., N. Y. City. June *Givaudan* contains articles on synthetic tuberose and lavender oil and their benefits to the perfumer. Special article describes tests applied to santal oil.
- A251. Grasselli Chemical Co.**, Cleveland. For those interested in a new, soft solder, Grasselli will send copy of booklet, "Eureka Soldering Flux."
- A252. The Hercules Powder Co.**, Wilmington, Del. July-August *The Hercules Mixer* combines plentiful news items with informal articles about Birmingham, the city, and Bessemer, the plant.
- A253. Magnus, Mabee, and Reynard, Inc.**, N. Y. City, announce their July-August price list and catalogue.
- A254. Mallinckrodt Chemical Works**, St. Louis, Mo. The new 122 page price list for July is out.
- A255. Merck & Co.**, Rahway, N. J. July *Merck Report* is unusually complete and interesting to the maker of fine chemicals.
- A256. Metasap Chemical Co.**, Harrison, N. J. "Metallic Soaps—their uses and properties," is a brief explanation of methods of manufacture and analysis, chemical and physical properties, and application.
- A257. Monsanto Chemical Co.**, St. Louis, Mo. June-July *Monsanto Current Events*. Issue features discussion of chemicals used in paper manufacture; announcement of Swann Chemical Co., producer of phosphoric acid and phosphate compounds, Monsanto's newest subsidiary; an interesting discussion of preventive medicine which is carried on in the Monsanto research labs; and the usual news features.
- A258. National Aniline & Chemical Co., Inc.**, 40 Rector st., N. Y. City. June *Dyestuffs*, discusses such varied dye markets as colored paper, horse hair and hog bristle, shoes, women's gloves, and hosiery.
- A259. National Lead Co.**, 111 Broadway, N. Y. City. Most recent *Dutch Boy Quarterly* contains popular descriptions of new stream-lined trains and stratosphere balloons as well as trade articles on quick drying red-lead primer, brick, stucco, and concrete painting, and lead usage in oil industry.
- A260. Philadelphia Quartz Co.**, 121 S. 3d st., Philadelphia, Pa. *Silicate P's & Q's* discusses solubility of silicate glass with special reference to colored varieties.
- A261. Pittsburgh Plate Glass Co.**, Grant Bldg., Pittsburgh, Pa. Well-done historical discussion of glass and glass making with special reference to Pennvernion double strength window glass.
- A262. Pittsburgh Plate Glass Co.**, Booklet announcement of financial situation to stockholders. Dated July 1st.
- A263. Thompson-Hayward Chemical Co.**, Kansas City, Mo. July, *The Test Tube* features "Chemical Prophecies," statements on business trends as a stockbroker might say it. Also note excellent article on activated alumina as an economical drying agent.
- A264. Toledo Synthetic Products, Inc.**, Toledo, Ohio, announce first number of their new house organ, "Plaskon Parade."
- A265. Jacques Wolf & Co.**, Passaic, N. J., announce 2 booklets, "Lupogum" and "Monopole Oil," products for textile sizing and finishing.

Equipment

- A266. Paul O. Abbe, Inc.**, Little Falls, N. J. New 6-page folder on equipment for a testing lab; mills, mixers, crushers, and sifters.
- A267. Alsop Engineering Corp.**, 39 W. 60th st., N. Y. City. Alsop announces new 32-page catalogue describing complete line high speed liquid handling and processing equipment.
- A268. Aluminum Co. of America**, Pittsburgh. July's *Aluminum News Letter* tells of new uses for aluminum and aluminum alloys in transportation fields.
- A269. American Cyanamid & Chemical Corp.**, Structural Gypsum Div., 30 Rockefeller Plaza, N. Y. City. New Booklet describes latest development, "Gypsteel Dowelled Plank," recommended for insulated roofings.
- A270. Bailey Meter Co.**, 1050 Ivanhoe Road, Cleveland. Bailey announces "Air-Operated Combustion Control," containing description of a complete combustion control system.

- A271. The Bryant Heater Co.**, Cleveland. *The Summer Times* announces installation of a Bryant Silica Gel Humidifier by the American Pharmaceutical Co. of New York.
- A272. The Chemical Rubber Co.**, W. 112th st. & Locust ave., Cleveland. "Muffle Furnaces," new bulletin, describes replaceable multiple-unit muffle furnaces.
- A273. Climax Molybdenum Co.**, 500 5th ave., N. Y. City. July *Moly matrix* suggests use of higher molybdenum for cracking still tubes to increase creep strength.
- A274. Climax Molybdenum Co.** announces new bulletin on applications of molybdenum in the iron foundry.
- A275. Electro Metallurgical Co.**, 30 E. 42d st., N. Y. City. The June *Electromet Review* describes the new Flying Yankee, along with other new uses for stainless alloy steels.
- A276. Electro Metallurgical Co.**, July's *Electromet Review* discusses use of light weight alloy steel for steam shovel buckets and boom to decrease weight per lift.
- A277. Harrisburg Steel Corp.**, Harrisburg, Pa. announces by bulletin, the change of name. The corporation was known as Harrisburg Pipe & Pipe Bending Co.
- A278. The International Nickel Co. of Canada, Ltd.**, Copper Cliffs, Ontario. Latest *Inco* contains a short, interesting article advising corrosion resistant metals for all equipment fastenings.
- A279. Johns-Manville**, 22 E. 40th st., N. Y. City. March-April *Power Specialist* is recommended for first installment of "Diatoms and Celite," vegetable organism figuring in several fields of industry.
- A280. Johns-Manville**, May-June *Power Specialist*. Conclusion of "Diatoms and Celite."
- A281. The Linde Air Products Co.**, 30 E. 42d st., N. Y. City. "The Metallurgy of Oxy-Acetylene Welding of Steel" contains fine discussion of the physical and chemical principles involved in acetylene steel welding. Non-technical language is used.
- A282. The Linde Air Products Co.**, July *Oxy-Acetylene Tips* features time-saving article on use of welding for repair of damaged cast iron. Bronze-welding is recommended.
- A283. Link-Belt Co.**, 30 42d st., N. Y. City. *Link-Belt News* contains articles on many uses of link-belt conveyors.
- A284. Lukens Steel Co.**, Coatesville, Pa. "A Century and a Quarter in Iron and Steel" is the interesting story of the Lukens Steel Co., as published in a recent issue of *The Iron Age*.
- A285. Mine Safety Appliances Co.**, Braddock, Thomas, and Meade sts., Pittsburgh. Presentation of new shock-resisting miners' helmets.
- A286. Minneapolis-Honeywell Regulator Co.**, Minneapolis, Minn. "This Thing Called Air-Conditioning," an exceptionally good discussion of the multitudinous uses for air-conditioning equipment.
- A287. The New Jersey Zinc Co.**, 160 Front st., N. Y. City. *The Alloy Pot* features article by W. M. Pierce, chief of metal research, on "What can you expect from Zinc Alloy Die Castings."
- A288. W. H. Nicholson & Co.**, 12 Oregon st., Wilkes-Barre, Pa. Nicholson welded steel floats are described and a price list is given.
- A289. The Ohio Carbon Co.**, 12508 Berea Road, Lakewood, Ohio. A new edition of "The Brush Phase of Motor Maintenance" is available upon request.
- A290. Pulmosan Safety Equipment Corp.**, 176 Johnson st., Brooklyn, N. Y. Description given of Pulmosan Dust Respirators for use particularly in mines.
- A291. John Robertson Co., Inc.**, 121-135 Water st., Brooklyn, N. Y. *Robertson Reminders* for those interested in heavy special machine equipment.
- A292. T. Shriver & Co.**, Hamilton st. and Franklin ave., Harrison, N. J. Shriver announces "The Pump for Difficult Jobs"—available upon request.
- A293. T. Shriver & Co.** "Shriver Diaphragm Pumps"—now available.
- A294. C. J. Tagliabue Mfg. Co.**, Park and Nostrand aves., Brooklyn, N. Y., announce a new and exceptionally complete catalog of industrial thermometers.
- A295. Worthington Pump and Machinery Corp.**, Harrison, N. J. "Vertical Sewage and Drainage Pumps"—for wet pit operation.
- A296. Worthington Pump and Machinery Corp.** "Air Lift Pumping Systems."
- A297. Worthington Pump and Machinery Corp.** "Vertical Centrifugal Pump."
- A298. Worthington Pump and Machinery Corp.** "Horizontal Duplex Piston Pumps"—for handling liquids at pressures up to 800 lbs. per sq. in.
- A299. Worthington Pump and Machinery Corp.** "Surface Condensers."
- A300. Worthington Pump and Machinery Corp.** "No 5 Sump Pump."
- A301. Worthington Pump and Machinery Corp.** "Air Compressor Units." Types VS and VA2.
- A302. Worthington Pump and Machinery Corp.** "Air Compressor Units." Types VS and VA-2 for oil and gas engine starting.
- A303. Worthington Pump and Machinery Corp.** "Deep Well Turbine Pumps." Types, Q, QA, QB, QC.

Packaging

- A304. Durez General Plastics, Inc.** North Tonawanda, N. Y. July *Durez Closure News* contains announcement of Durez Holiday gift containers for Christmas packaging.
- A305. J. L. Ferguson Co.**, Joliet, Ill. July *Packomatic* features article on automatic packaging installations in the new St. Joseph, Mo. Jersey Cereal Co. plant.
- A306. Reynolds Metal Co.** has just released "New Facts about Protective and Distinctive Packaging." Booklet deals particularly with packaging of perishable food products.

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Plant Operation and Control

A Digest of the Current Literature for Makers of Chemicals

Cooling and Condensing Processes Reviewed

By Basil Heastie

In most chemical processes condensation of vapors and cooling of liquids plays an important rôle, and the choice of suitable plant to meet the many varied conditions is often very difficult. Probably the commonest condensation problem is that of condensing steam; here the designer has an extensive literature to consult. An enormous amount of experimental and theoretical work has been carried out in order to obtain the highest possible efficiency, and little improvement may be expected on the types now in use in large power stations.

The chemical engineer usually has to deal with complex vapors, often having entirely different physical properties from water, thus experience or direct experiment is his only guide. Some interesting work on the dropwise condensing of steam has been done recently by Nagle and Drew in the U. S., which sheds a new light on the phenomena of condensation of steam upon metallic surfaces. Their investigation was carried out to explain observations made during a study of the water-side coefficient of heat transfer in a vertical condenser. Over a 12-hour continuous test the capacity of the condenser was repeatedly found to increase about 60% from the initial value of 90 lb. steam per hour per sq. ft. to 145 lb., all operating conditions being unchanged. The cause of this behavior was found to be an increase of the steam-side heat-transfer coefficient, which might be due to a change from film to drop-wise condensation.

Further experiments were carried out on a condenser consisting of a copper pipe $2\frac{1}{2}$ in. internal diameter exposed for 24 in. of its length, boiler steam at a pressure of about 5 lb. per sq. in. being condensed on its outer surface. This surface was cleaned with fine emery cloth and a solution of $ZnCl_2$ and HCl before beginning the run. Four runs were carried out. In the first one the steam-side heat-transfer coefficient increased in 9 hours from 630 to 1,070. The last test was taken after the steam chamber had been open to the air for 14 days. At half an hour from the start of the run the steam-side heat-transfer coefficient was roughly 1,400 B.Th.U., increasing to 3,700 B.Th.U. 9 hours after the start.

Other careful experiments taken on a small condenser having a 1-in. outside diameter tube, 6 in. effective heating length, showed that the heat transfer often increased by 50% when the condensation changed from film to dropwise. On smooth surfaces a thin film of oil or grease had a large effect in promoting dropwise condensation, roughness in general is unfavorable, while probably the best surface for inducing dropwise condensation is chromium-plated one.

Fatty acids and fatty oils have a greater tendency to adhere to a metal surface than has water or mineral oil, and this was borne out by the above tests, in which it was found that oleic

acid and other fatty material were most effective in promoting dropwise condensation.

Some remarkable results were obtained by Spoelstra when testing the fouled tubes of evaporators in Javanese sugar mills; copper and brass tubes from the first effects actually showed a decrease in heat transfer after cleaning with naphtha. Analysis showed that the scale contained 15 to 30% of oil substances which were largely removed by the naphtha. In one instance the overall heat transfer was reduced from 508 to 346 by cleaning the tube. It appears, therefore, that the presence of oil in steam, especially if the oil is vegetable, not mineral, will improve the heat transfer. This is directly opposed to the older view that any oil carried over from exhaust or back-pressure engines is fatal to good heat transfer, and led to fitting oil separators as standard practice. The chief practical conclusions from their investigations are that smooth tubes should be employed for condensers and that the presence of small quantities of oil in the steam may even be an advantage.

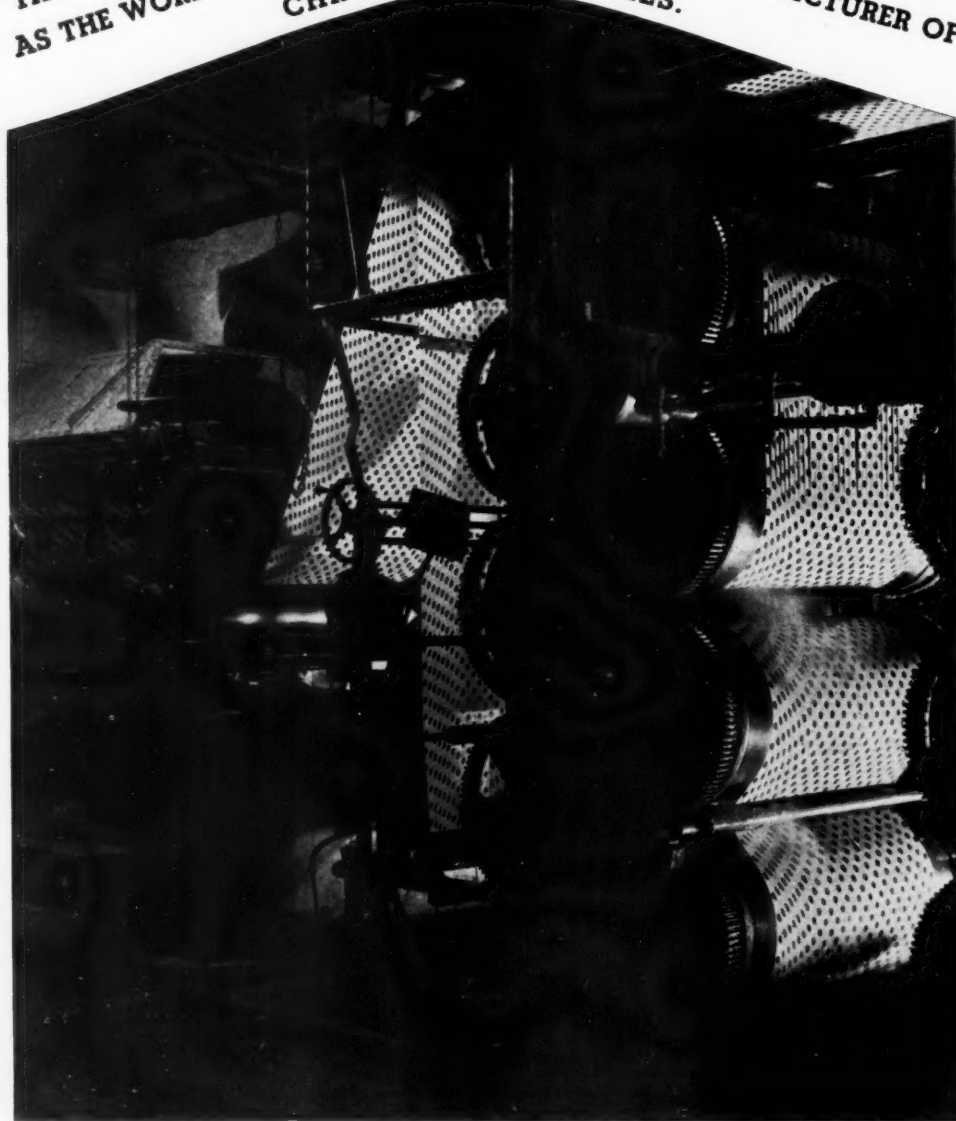
A recent development of an old invention is the cooling of water by water vapor refrigeration. The first refrigeration machine was of the vacuum type; it was invented by Dr. William Cullen in 1755, and consisted of an air pump for exhausting a receiver containing water and evaporating a portion under vacuum, thereby cooling it. The modern plant employs a steam ejector in place of the air pump and, owing to the great improvements made in the design of steam ejectors during the past 6 years, it is now possible to obtain vacuum within 0.36 in. of mercury, corresponding to a boiling point of 50° F. Thus, when water at some higher temperature is sprayed into the receiver it is partially evaporated until its temperature drops to 50° F.

The cooling equipment consists essentially of a flashing vessel into which the water to be cooled is sprayed. A high vacuum is maintained on the vessel by means of a steam-operated air ejector augmentor, which discharges this evaporated vapor and steam into a barometric jet type condenser connected in turn to a 2-stage steam ejector for extracting the condensate and any incondensable gases or air. A plant designed for cooling water at the rate of 100 gal. per minute from an initial temperature of 70° F. to 60° F. would require about 4 b.h.p. for extracting the cooled water from the flashing vessel, and use about 1,100 lb. steam at 50 lb. gauge pressure when the barometric condenser is supplied with cooling water at 70° F. The steam consumption would be much reduced if a higher steam pressure were used, and where possible steam at 100 to 150 lb. per sq. in. would be employed. The chief advantages of steam jet refrigeration are its simplicity, the absence of moving parts and of chemicals. The application of this system cannot be applied efficiently for cooling water lower than about 48° F. owing to the extremely high vacuum necessary in the flashing vessel.

The cooling of viscous fluids, such as oils, grease, etc., is usually a difficult problem, first due to the impossibility of obtaining anything approaching turbulent flow, and secondly to the extremely low thermal conductivity of oils and greases which are of the order of one-seventh that of water. In order to improve the heat transfer the passages for the oil or grease should be narrow, *i.e.*, the ratio of heating surface to cross-

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sectional area should be large; this is attained in the "filter press" type by passing the liquid through shallow rectangular passages machined in thick plates and separated by thin ones.

Another type of cooler recently designed by the writer for cooling grease consists of a water-cooled cylinder revolving inside a jacketed outer cylinder through which cooling water also passes. The grease passes through the narrow annulus formed by the inner and outer cylinders. To break up the stream-line flow of the grease, corrugated strips were welded to the inner and outer surfaces of both cylinders, the inner ones revolving between the outer fixed ones.—One article in an interesting symposium on fundamental chemical engineering problems appearing in the June 29th issue of *British Chemical Age*.

Fine Chemicals

Sulfonating the Higher Alcohols

A cheaper and more convenient method of sulfonating the higher alcohols is described by Mario and Alberto in a recent issue of *Seifensieder-Zeitung* and digested in the *British Soap, Perfumery and Cosmetics Trade Review* for April.

Ten kg. of sperm oil are dissolved at ordinary temperature in 100 kg. dry trichlorethylene. The solution is cooled to -2°C . and then 8 kg. chlorosulfonic acid is added slowly and carefully. Reaction is complete after 48 hours. Mixture is then slowly poured into 100 kg. ice and 50 kg. water. The free mineral acid is neutralized with lime and the solvent recovered by steam distillation. Mixture is then filtered and washed with cold water. Filtrate contains the calcium salt of the sulfonic acid of the cetyl alcohol. Then soda is added, by which calcium carbonate is precipitated and the sodium sulfonate of the cetyl alcohol is obtained, the solution of which is concentrated to dryness *in vacuo*.

This dry substance is then ground, and forms a yellow powder which is highly soluble in water and yields solutions which are stable toward calcium and magnesium salts. When the solution is shaken, a stable lather is developed. Residue which is obtained after precipitation with lime consists chiefly of calcium sulfate, calcium palmitate and a few impurities formed during the reaction. This residue is treated with hydrochloric acid and heated, whereby palmitic acid is separated, which can be obtained in a fairly pure condition. Yield is large. Properties of the sulfonate are satisfactory when compared with those of the product which is obtained from the pure cetyl alcohol, and the output of fatty acids which can be recovered is sufficiently good to influence the cost price favorably.

Production of Alkali Bromides

Production of alkali bromides without the intermediate formation of iron bromides has been perfected by Ilünski, Tchertok and Rakmilevitch ("*Kalic*," 1934, No. 4, pp. 29-36). During process, bromine is added to a solution containing equivalent quantities of alkali hydroxide and alkali formate. The following reaction takes place: $\text{H.COONa} + \text{NaOH} + \text{Br}_2 = 2\text{NaBr} + \text{H}_2\text{O} + \text{CO}_2$. The method is being studied on the industrial scale.

Heavy Chemicals

Conversion of Chromate to Bichromate

In an I. G. process sodium chromate is converted to bichromate by treatment with carbonic acid at $60^{\circ}\text{--}80^{\circ}\text{C.}/6\text{--}8$ atms. After a considerable conversion has been effected, it is advisable to allow the solution to cool for 2 hrs., when the pressure is released, and the crystalline sodium bicarbonate filtered. The filtrate is treated again under pressure to complete the formation of the bichromate.

Agricultural Chemicals

New Process for Sodium Nitrate

Additional details of the process for the production of sodium nitrate suggested by Prof. A. Guyer before the 14th Congress of Industrial Chemistry last October in Paris are given in a summary in *The Chemical Trade Journal* of London (June 14 issue).

Guyer's suggestion is to make use of the double decomposition reaction between sodium chloride and calcium nitrate, but to effect this reaction not in water but in ammonia. In aqueous solution, the reaction is not a practicable proposition, as owing to the equilibrium conditions early set up it is not possible to separate the sodium nitrate in paying yield. Effected in ammonia, however, conditions are very different, as both sodium chloride and calcium chloride form complex compounds with ammonia; but whereas the former complex compound is relatively soluble in ammonia, the latter is relatively insoluble.

Since commercial calcium nitrate is not an anhydrous product, the double decomposition reaction would be impracticable if perfectly anhydrous ammonia were essential, but Guyer has found that a content of water in the ammonia up to about 15% does not present any great difficulties. In the case of potassium chloride, the solubility in ammonia is less than that of sodium chloride, but in this case, unlike the sodium salt the solubility of the chloride increases as the water content of the ammonia rises, up to about 20%. Other considerations, however, show that the reaction between potassium chloride and calcium nitrate in ammonia is slower and less complete than in the case of the sodium salt.

In a suggested technical adaptation of the process, use is made of an insulated reaction tank provided with an agitator. This tank is charged with ammonia recovered from a previous cycle, after which there is added the nitrate of lime either as solid or as a strong solution in ammonia. The sodium chloride is then added slowly, and the sodium nitrate is formed in measure as the chloride is added. The reaction is practically without thermal effect, and is preferably effected at the boiling point of the liquid ammonia. (The recovery of the ammonia evolved from the reaction pan would seem to present technical difficulty, particularly as arrangements have to be made for the intermittent addition of the solid sodium chloride.)

Plant Operation

Preparation of a Safety Code

All manufacturers and employers who are faced with the occupational disease problem will be interested in the forward and important step being taken by the American Standards Association in preparing a Safety Code for toxic dusts, gases and fumes.

One of the outstanding purposes of the A. S. A., for which it is recognized both nationally and internationally, has been the development of safety codes for industry. However, thus far the committee attempting to develop Exhaust and Ventilation codes has found it difficult to establish standards of performance without knowing the safe and unsafe atmospheric conditions for various contingencies for which they are drawing up standards.

To remove these difficulties, the Standards Council of the Association, on the recommendation of the Safety Code Correlating Committee, of which C. E. Pettibone, vice president of American Mutual Liability Insurance Co. and manager of the engineering department, is chairman, on April 25 approved the appointment of a National Advisory Committee on Toxic Dusts and Gases. This committee will assist the various A. S. A. sectional committees in establishing threshold limits on toxic dusts, gases and fumes.

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It is expected that among the qualified experts who will compose the Advisory Committee there will be specialists in toxicology, pathology and medicine. Men experienced in industrial medicine, medical research and insurance, and industrial chemists and engineers will be included.

At the present time, there is no authoritative group as a source of limits on toxic gases and fumes although some states have specified them and others are interested in them. The findings of such a group of specialists, experienced in all phases of the work as well as in modern research methods, and working together under the A. S. A., where industry is fully represented are bound to form an authoritative opinion.

The Plant Insurance Problem

Plant executives sometimes find insurance problems a source of trouble. Carll S. Downs outlines the insurance yardstick as follows: 1—General reputation of company; 2—Character of policy holders; 3—Trend of growth of company; 4—Profit earning record; 5—Income and disbursement record; 6—Loss ratio; 7—Expense ratio; 8—Accident prevention; 9—Claim settlement; 10—Final net cost; 11—Coverage advice.—*The Paper Industry*, July, p41.

Laboratory

Ultra Violet Light in Chemical Analysis

Use of ultra violet light in chemical analysis is expanding. Practice of painting walls, woodwork, etc., with compounds to prevent moisture coming through is well known. If a block or slab of the material is coated on one face with the sealing compound, allowed to dry and the untreated face immersed in water, it is often difficult to tell if and when the water passes the sealing compound. If, however, eosin intimately ground with dry castor sugar be dusted on the treated surface, and the whole placed under an ultra violet lamp fitted with a dark filter, the penetration of moisture is readily seen as the eosin commences to glow vividly with the first trace of water. The addition of a small amount of a wetting agent to the water in the container greatly hastens the penetration, and thus shortens the time required for the test. This method has been used for paper.

In spraying, depth of penetration is often an important factor, whether the material be wood, plaster, or other media; and in some cases it is not easy to assess this, as the fluid may be invisible in thin films. The use of the lamp overcomes this difficulty. If the medium is an aqueous alkaline one, the addition of a small amount of salicylic acid or sodium salicylate can be made. After spraying, a section can be cut and examined under the lamp, and the depth of penetration is shown by the bright violet glow. For an acid liquid, eosin, quinine, etc., can be used. For non-aqueous liquids a very small amount of highly fluorescent oil can be included in the spray trial, and in a number of cases it will be found that the spray liquid itself has sufficient fluorescence under the lamp for its penetration to be judged.

Cements show very little of interest under the lamp, but with iron blast-furnace slags a useful determination of the resistance to "weathering" may be obtained. Unstable slags contain particles of α and β dicalcium silicates, which change to the γ dicalcium silicate with an increase of 10% in volume. Under the lamp an unstable slag appears violet, but numerous spots fluorescing from red to yellow or cinnamon brown color show the presence of the unstable dicalcium silicates. Stable slags, on the other hand, show a violet fluorescence where newly fractured, and after weathering some yellowish-white spots appear.

W. Teuscher has found that 1 part in 50,000 of coal-tar pitch is detectable in petroleum pitch or asphalt; the former has a green blue fluorescence, and the latter fluoresces with a redder shade. By dissolving the substances in petroleum spirit,

and comparing the colors under the lamp with those of solutions of mixtures of the two, Becker claims to be able to detect 5% of tar in bitumen. H. B. Milner, of the Geochemical Laboratories, has obtained a number of interesting results dealing with various grades of bitumens.

A number of buildings are now being fitted with glass which, it is claimed, will transmit the beneficial ultra-violet rays of the sun, but the efficiency of different makes varies widely. A simple method of testing the transmission characteristics of different glasses is to expose a piece of white-fluorescing paper behind each to the filtered ultra violet rays, when the glass with the best transmission for ultra violet will be shown by the brightest fluorescing paper. The different glasses should be of equal thickness.

Only a few examples can be given here. Solvent extracted oils generally show a violet fluorescence and differ from the characteristic colored fluorescence of expressed oils. A number of resins may be differentiated one from another; also driers show various fluorescence colors. Resinous and resin-free varnishes may be clearly differentiated, as the former gives a bluish color easily distinguished from the dirty green fluorescence of the latter and adulteration of pigments with certain substitutes is so definitely detectable that chemical tests can be dispensed with in certain cases.—*Chemical Trade Journal*, British, July 12, p30.

Platinum Alloys for Laboratory Ware

Two platinum alloys are used for laboratory ware. One, standard crucible platinum, contains 0.2 to 0.4% of iridium. The other contains 3 to 4% of rhodium. Since the introduction of the latter type, only a few years ago, the U. S. Standards Bureau has made observations on its performance in service as compared with the older "crucible" platinum. So far no striking differences in quality have been observed. They are about equally constant in weight during prolonged ignition. The platinum-rhodium alloy has a distinct advantage in its greater ruggedness. On the other hand, it tends to stain or discolor under some conditions. As yet there is no evidence as to the probable relative life of the two alloys.

The standard "crucible" alloy was adopted by manufacturers some twenty years ago after an investigation at the Bureau had disclosed that the amount of iridium then used in ware (up to 4%) caused excessive losses in weight when the ware was heated at temperatures above 1,000° C. More recent observations have indicated, however, that the iridium content need not be restricted quite so severely. Crucibles containing 0.75% of iridium are much more rugged than those containing 0.2 to 0.4% (if the weight and design are the same) and do not lose weight rapidly enough, even with free excess of air, to cause significant errors in many operations of quantitative analysis.

If crucibles escape damage by contamination with foreign substances during use, they will eventually go out of service because of the development of inter-crystalline cracks. This embrittlement which comes with age is the only remaining serious fault of platinum ware. There is as yet no satisfactory explanation for the development of these cracks. A possible cause is the accumulation of impurities at grain boundaries, either as the result of slow and continuous contamination from gas flames, or other outside sources, or of the gradual diffusion of small amounts of impurities which are originally present in the platinum. Sudden failure of a crucible in service is almost sure to be the result of some error or accident in the use of the ware, rather than a fault in its manufacture.—Dr. Edward Wichers before the N. Y. City A. C. S. meeting.

Manchukuo engineers are said to have obtained satisfactory results with soyabean oil products as a substitute for gasoline and also lubricating oils.

Standards

Highlights of the A. S. T. M. Meeting

At the 1935 A. S. T. M. annual meeting in Detroit, Committee D-5 on Coal and Coke presented an extensive report covering its many phases of work, the Sectional Committee on Classification of Coals reported, and E. P. Barrett gave a paper describing a new furnace and its use for the measurement of coal-ash softening temperature.

Committee D-5 recommended 4 new proposed standards which will be issued as tentative. One of these covers definitions of the terms "gross calorific value" and "net calorific value" of fuels.

Two methods of test for grindability of coal were presented, one by the ball-mill method, the other using the Hardgrove machine method. The first named describes a laboratory procedure for estimating the grindability of coal. Briefly, the relative amounts of energy necessary to pulverize different coals are determined by placing a sample of coal in a ball mill and finding the number of revolutions required to grind it so that 80% of the sample passes a 74-micron (No. 200) A. S. T. M. sieve.

The Hardgrove method is used to determine the relative grindability or ease of pulverizing of coals in comparison with a coal chosen as 100 grindability. The method is based on Rittinger's Law which states: "The work done in pulverizing is proportional to the new surface produced." A prepared sample receives a definite amount of grinding energy in a miniature pulverizer and the new surface is determined by sieving.

A new method of test for screen analysis of coal was developed and recommended to Committee D-5 by Subcommittee VII on Defining Coal Sizes and Friability (J. D. Doherty, chairman), of the Technical Committee on Coal Classification of the Sectional Committee on Classification of Coals. The method applies to size testing of all coal with the exception of anthracite, powdered coal as used in boiler plants, and crushed coal as charged into coke ovens, methods for which are already standards of the Society. The method represents the best American practice in size testing of coal to determine the distribution of various sizes in any given lot of coal.

In addition to these new tentative standards, Committee D-5 proposed the adoption as standard of the Method of Sampling Coke for Analysis (D 346—33 T).

In his paper on the measurement of coal-ash softening temperature, Barrett described a furnace of the horizontal muffle type so constructed as to permit the cones to be viewed against a background somewhat lower in temperature, so that they are readily visible at all temperatures between 1500 and 3000 F. (815 and 1650 C.). He pointed out that the difference in design between the horizontal muffle furnace and the conventional pot furnace does not affect the results obtained because the conditions in the former meet the requirements of the A. S. T. M. methods for determining ash softening temperatures.

Corrosion on Metals

Crowded sessions on corrosion and on effect of temperature on metals, fatigue of metals, were features of the meeting.

Committee A-10 on Iron-Chromium-Nickel and Related Alloys presented with its report 4 new specifications covering soft corrosion resisting chromium nickel steels (sheets, strips and plates), and 12%, 19% and 28% chromium steel castings. These are the first specifications to be developed by the committee and a number of others are nearing completion.

Committee A-5 on Corrosion of Iron and Steel prepared three specifications in cooperation with the American Electroplater's Society and the National Bureau of Standards, covering electrodeposited coatings of zinc, of cadmium, and of nickel and chromium on steel. They are the first proposed standards

issued by the Society relating to plated coatings on steel and it is expected that as a result of comments made following their publication as tentative subsequent revisions may be desirable. These specifications will serve a very useful purpose in setting up minimum requirements for plated coatings designed for types of service as classified in the specifications.

The Literature

Articles of interest to the chemical and process industries particularly noted in a monthly review of the U. S. and foreign periodicals.

Paints. "Modern Driers," by C. A. Klebsattel of Advance Solvents & Chemical Corp. *Paint, Oil & Chemical Review*, June 13, p20.

Paper. "Routine and Research In The Paper Mill," by James Strachan. *The Paper-Maker and British Paper Trade Journal*, June 1, p81.

Plant Equipment. "Plastics In A Chemical Works," by M. B. Donald. *Chemistry and Industry*, British, June 7, p640.

Plant Management. "The Functions of a Research Department," by T. M. Herbert. *Glass*, British, May, p207.

Plasticizers. "Plasticizers and Resins For Cellulose Esters, Part 1" *Synthetic and Applied Finishes*, British, May, p40.

Raw Materials. "The Decay of Wood and the Formation of Coal," by Ernest A. Rudge. *Chemistry and Industry*, British, May 24, p499.

Rayon. "The Rayon Industry In Japan," by Richard Flint. Discusses whether or not recent prosperity is in danger of decline. *Silk & Rayon*, British, June, p296.

Resins. "New Angles on Synthetics," by Dr. William Krumbhaar, Beck, Koller & Co. *Paint, Oil & Chemical Review*, June 13, p24.

Rubber. "Hard Rubber (Ebonite)," by A. R. Kemp and F. S. Malm. *India Rubber World*, June 1, p45.

Silk Weighting. "Silk Weighting," by Marion Chinn and Ethel L. Phelps. A general review of the various methods of procedure. *Rayon and Melliand Textile Monthly*, May, p55.

Statistics. "Chemical Production-Imports-Exports," by W. H. Losee and H. McLeod. The story of Canada's 1934 chemical figures. *Canadian Chemistry and Metallurgy*, May, p119.

Synthetic Finishes. "Synthetic Finishes." Discusses in particular the advances in the use of modified resins of the phenolic and alkyd types. *The Industrial Chemist*, British, May, p174.

Textiles. "The Chemistry of Textile Water Supply." A review of old and new methods of purification and softening. *Textile Colorist*, June, p371.

Textiles. "Bleaching Textiles With Peroxide," by A. R. Tucker. *Rayon and Melliand Monthly*, May, p50.

Textiles. "The Future of Raw Silk In The World," by Leo Duran. A study of raw silk production and consumption, showing Japan first in silk manufacture now seems destined to lead the world in the production of rayon. *The American Silk & Rayon Journal*, May, p23.

Wastes. "Meat Packing Plant Waste Treatment," by E. F. Eldridge. A study of efficiencies of coagulants and costs. *Water Works and Sewerage*, June, p216.

Waxes. "Beeswax Supplies." *The Chemical Trade Journal and Chemical Engineer*, London, May 31, p419.

Miscellaneous Booklets of Interest

Agricultural Insecticide. "Arsenical Injury on the Peach." The Agricultural Experiment Station, State College Station, Raleigh, N. C.

Boron. U. S. Dept. of Agriculture through the Supt. of Documents, 206. "Boron in Soils and Irrigation Waters and Its Effect on Plants."

Coal and Coke. A. S. T. M. preliminary report of Committee D-5.

Coal-Tar Crudes. The Tariff Commission, Washington, has released 1934 report on production, sales, imports, and exports of coal-tar crudes.

Coke. "Coke and By-Product Tables for 1934," have been released by the Bureau of Mines, Washington, D. C.

Corrosion. A. S. T. M. preliminary report on the "Control of Corrosion in Air Conditioning Equipment by Chemical Methods."

Costs and Profits. National Industrial Conference Board has available an authoritative study on "Costs and Profits In Manufacturing Industry." \$1.

Dyes. Tariff Commission's annual report on "Production and Sales of Dyes and Other Synthetic Organic Chemicals in 1934."

Fats & Oils. A reprint of an address on the fats and oils situation and also the general economic outlook delivered by H. M. F. Faure before the International Congress of Oil Crushers. Faure, Blattman & Co., Cunard House, London, England.

Hydrogen Sulfide. The Bureau of Mines, Washington, has released R. I. 3276—"A Detector For Quantitative Estimation of Low Concentrations of Hydrogen Sulfide."

Paints. National Paint, Varnish and Lacquer Association has issued a special circular, a reprint of Dr. Henry A. Gardner, paper presented at the Paint Symposium of the A. S. T. M. in Philadelphia on Mar. 6.

Patents, etc. Bibliographic Series Eighth Supplement to Bulletin No. 2, gives a list of the books, bulletins, journal contributions and patents by members of Mellon during 1934.

Phosphate. U. S. Tariff Commission has a limited number of copies of a report on phosphates, crude, and superphosphate.

Preservative Coatings. A. S. T. M. preliminary report of Committee D-1 on coatings for structural materials.

The 30-hour week. National Industrial Conference Board, 247 Park ave., N. Y. City. A timely, interesting summary of the available facts about the probable effects of a 30-hour week on employment, production costs, prices, purchasing power, and output per worker. \$1.

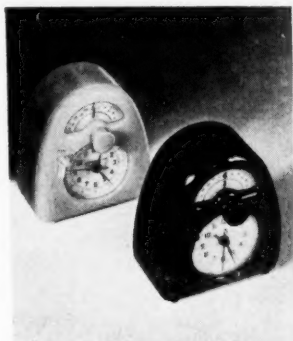
Tin. Factors Influencing the Formation and Structure of Hot-dipped Tin Coatings. No. 17 in a series-Technical Publications of the International Tin Research and Development Council. Received from L. J. Tavener, U. S. Representative, 149 Broadway, N. Y. City.

Water. American Society for Testing Materials, 260 Broad st., Philadelphia, has released preliminary report of Committee D-19 on "Water For Industrial Purposes."

New Equipment

Electrical Timer

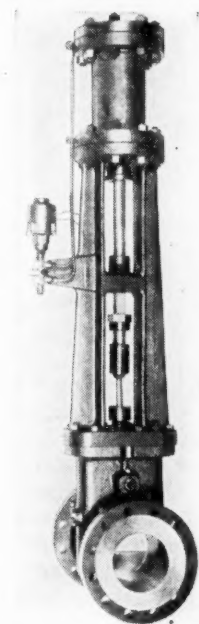
For precision timing the new all electric interval timer, fulfils chemical and engineering requirements. The large diameter interval measures time from one to 120 minutes, while the clock has a large, red second hand to indicate clearly fractions of a minute. The attractive lustrous black case of Bakelite Molded is acid resistant and dielectric. It has a clear-toned buzzer which may be adjusted either loud or soft, long or short. This is a device that will prove a boom in many different manufacturing operations.



QC 265

Adjustable Orifice

An adjustable orifice which automatically shifts its position in accordance with major changes in rate of flow, is a new development. This device, when installed in a pipe line and connected to a standard recording and integrating fluid meter, greatly widens the flow range which may be accurately covered by the meter. The automatic adjustable orifice is similar in appearance to a hydraulically operated gate valve. The gate, however, is a sharp edged orifice segment, coefficients for which have been accurately determined. Its position varies the size of the orifice opening through which the fluid measured must pass. Movable stops limit the stroke of the hydraulic piston so that the orifice segment rests in either one of 2 definite positions. Piston which positions the orificed is actuated by a solenoid operated valve, which in turn is commanded by contacts made in the recording meter. Through the solenoid valve, hydraulic pressure is admitted to either end of the cylinder, and the other end is opened to drain.



QC 266

New Light Weight Portable Pump

A new compact, portable, self-priming, centrifugal (3-inch) pump has just been announced. Unit weighs only 88 lbs. complete including its built-in, air-cooled gasoline engine. It handles 15,000 gals. per hour, has a guaranteed suction lift of 28 ft., and will handle muddy water (with solids) at the rate of 35,000 gals. per gallon of gasoline consumed.

QC 267

Laboratory Balance with New Features

A new laboratory balance is available. Manufacturer summarizes the properties and advantages as follows: Capacity 100 grams; accurate to about 1/100th gram; ruggedly built; compact. Slips into your pocket; no loose weights; agate bearing; alloy steel knife edge; Bakelite base and pan; die cast light alloy beam; weighs quickly and accurately; and nothing to get out of order.

QC 268

Oil Blast Circuit

An oil blast circuit breaker especially applicable where space is limited, such as in industrial plants and other stations, is announced. Designated as Type FK-42, it is rated 600 amperes,

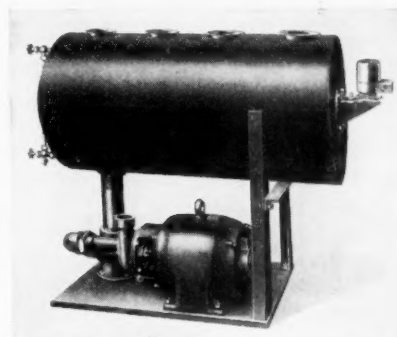
QC 269

7500 volts; 800 amperes, 2500 volts; and 25,000-kv-a. interrupting rating. All designs are double- and triple-pole single throw, with all poles in a single rectangular welded plate steel tank. Provision is made for mounting directly back of panels, or in switch houses or metal-enclosed switchgear. They may be manually or electrically operated.

Condensate Return Units

One of the latest developments is a complete series of 54 sizes and types of automatic Monebloc condensate return units which are applicable to a wide variety of condensate return services as for steam heating systems and for steam process plants, as in chemical plants, cleaning and dyeing plants; and in connection with cooking equipment, kilns, dryers, etc. Plant managers re-

QC 270



port satisfactorily on several installations.

Alcohol Concentrator

A small alcohol concentrator will take 95% material and produce absolute alcohol.

QC 271

Many laboratories require large quantities of alcohol for washing specimens and other routine work. During these operations, the alcohol absorbs water and other foreign matter which render it unfit for further use. This "used" alcohol, however, may be run through this Barnstead Concentrator and recovered in its original state.

This novel piece of equipment is primarily for laboratories that wish to purchase inexpensive commercial alcohol (95%) and economically convert it to absolute alcohol (100%). It operates on an efficient principle of distillation from lime.

Concentrators are available in convenient sizes and may be heated with gas, steam or electricity. They are made of long wearing materials, attractively finished and are practically indestructible. Full details and prices will be sent by the maker upon request.

Small Atomizer

A new type of atomizer with 3 special features is available for spraying tannic acid for burns. Should be in every plant.

QC 272

A Hand Homogenizer

A hand homogenizer has just been perfected that will prove handy in the laboratory for preparing samples.

QC 273

Testing Plating Thicknesses

An accurate thickness tester for zinc and cadmium plating, called the Chemicrometer, is reported.

QC 274

Small High Speed Grinders

Smaller in size than anything yet produced in high speed electric tools, a new grinder, measuring 6" long overall and 1 5/8" in diameter, has been brought out. Hundreds of uses are being suggested by the makers.

QC 275

Chemical Industries,
25 Spruce Street,
New York City.

I would like to receive more detailed information on the following equipment: (Kindly check those desired.)

QC 265	QC 270
" 266	" 271
" 267	" 272
" 268	" 273
" 269	" 274
	" 275

Name

Title

Address

Packaging, Handling and Shipping

Printers' Ink Summarizes the Chief Points to be Considered in Redesigning A New Package—Cross Resigns from Continental Can—Frey Heads Geuder, Paeschke & Frey—Container Co. Notes—Steel Barrel Production Figures—

Printers' Ink in answer to an inquiry from a subscriber briefly outlined in the July 25th issue 18 points that should be considered before a new package is designed. They are: 1. Is there a need for a new package?; 2. What is the primary appeal of the product?; 3. Has the product a secondary appeal?; 4. What is the purpose of the package?; 5. What are general design trends?; 6. What are the design trends in the industry?; 7. Who are the prospects and customers?; 8. How about the dealer?; 9. How will the package be used in display?; 10. How will the package be tied up with the advertising?; 11. What material should be used?; 12. Is the package possible from a production standpoint?; 13. Are gadgets necessary?; 14. Is the product one of a family of products?; 15. What are the designs used by competitors?; 16. Will consumers like the new package?; 17. Should the product also be improved?; 18. In what condition are dealers' stocks? After the package has been designed comes the question of placing the package in circulation and the writer suggests consideration of:

1. The salesman should be equipped with some form of portfolio which shows all the steps in merchandising the package.
2. If the product is sold through jobbers, both the jobber and his salesmen should have information showing each step.
3. No recognized merchandising tool should be overlooked. Some of those most commonly used in merchandising the package are letters, broadsides, folders, portfolios, articles in house magazines (to salesmen, jobbers, dealers), personal work on the part of all salesmen selling the product.
4. The package should be given every possible advertising backing.
5. The news value of the package change should be emphasized to the limit.

There are certain questions that come up with putting the package into circulation. Should the new package be introduced instantaneously on a country-wide scale or gradually as dealers sell out their old stock?

If the instantaneous process is to be followed, what provisions should be made for taking back merchandise in the old package? If this merchandise is not to be taken back, how are the dealers to be helped to clean out their stock of old packages? How soon after the introduction of a new package is it safe to announce it to consumers?

Personal Notes

Jacques M. Cross resigns as manager of the development dept., Continental Can to become sales and development manager of Pulp Products, 60 E. 42d st., N. Y. City, a newly formed company, which will manufacture containers made of moulded pulp. This Company will manufacture a general line of moulded pulp containers for various dry products. These containers can be moulded into any shape and will bring to the packer advantages that he has not heretofore enjoyed.

Frank J. Frey, vice-president of Geuder, Paeschke & Frey, Milwaukee, containers, pails, etc., has been named president of the firm to succeed the late Charles A. Paeschke, who died in April. Mr. Frey has been with the company since it was formed in 1882.

With the Container Companies

Removal of the New England sales offices of Robert Gair on July 15, to 77 Sumner st., Boston, telephone, Liberty 5125-6, has been announced by Arthur J. Wallace, manager.

Robert Gair acquires Androscoggin Pulp, South Windham, Me., a modern paperboard and ground wood pulp plant.

Employees of Bates Valve Bag, a subsidiary of St. Regis Paper, will benefit by the installation of a group insurance plan which has been put in effect.

National Adhesives, maker of Mikah products, moves into a new building for its Pacific Coast factory and headquarters, at 735 Battery st., San Francisco.

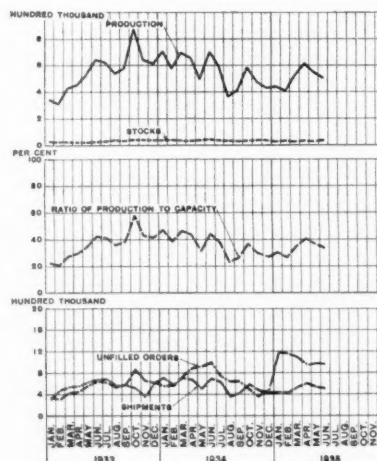
H. & D. Acquires Evans Fibre Box

Hinde & Dauch Paper (corrugated fibre shipping boxes) acquires Evans Fibre Box, Chicago, making 26 mills and factories in the group.

Steel Barrel Production Figures

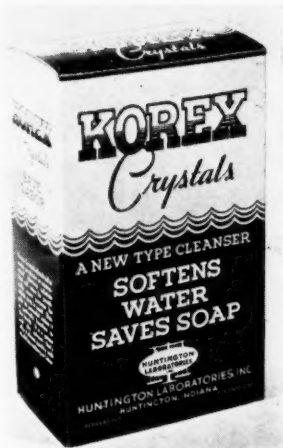
Monthly statistics on production, shipments, stocks, and unfilled orders for steel barrels, based on data reported by

30 manufacturers, operating 35 plants, for June with comparisons for previous months of 1935, were released recently by Director William L. Austin, Bureau of the Census, Department of Commerce, and are presented in the following table. Manufacturers, whose data are included in these statistics, produced approximately 85% of the total value of the output in the industry at the Census of Manufactures for 1933.



(In Number of Barrels)

Month	Operations (ratio to capacity)	Production	Shipments	Stocks, end of month	Unfilled orders, end of month Total	For delivery	
						Within 30 days	Beyond 30 days
January	30.1	437,442	438,334	29,338	1,189,878	137,496	1,052,382
February	26.9	404,203	402,928	30,613	1,175,081	176,239	998,842
March	34.8	523,362	525,022	28,953	1,102,545	186,537	916,008
April	40.8	614,385	610,848	32,490	961,593	187,587	774,006
May	36.6	551,882	554,102	30,270	996,979	196,276	800,703
June	33.6	504,930	501,730	33,470	990,429	124,170	866,259
Total (6 mos.)	33.8	3,036,204	3,032,964	.....	.....	.....	.....



Huntington Laboratories, Huntington, Ind., changed the name of Rex Crystals, following a radical improvement in the product, to Korex Crystals and at the same time redesigned the package. Colors are blue and white.

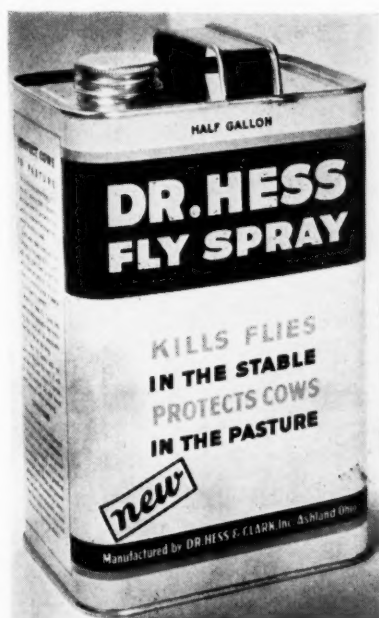
DuPont's list of chemical specialties is constantly growing and Tri-Clene sales are growing by leaps and bounds.



Carbide and Carbon Chemical Corp.'s one-gallon package for Winter-Flo—its premium anti-freeze. It is concentrated methanol which has been colored and effectively inhibited.



Shinola offers a number of new display cartons to dealers, and their use is bringing definite sales results. Well designed displays permit the retailer to show his wares on counters, etc., thereby keeping the product constantly before the buying public.



Dr. Hess & Clark, Inc., Ashland, Ohio, adopt a new design for their famous stock fly spray. Material is available in smaller sizes in addition to the gallon can shown in the photograph to the left.



U. S. Chemical Patents

A Complete Check-List of Products, Apparatus, Equipment, Processes

Agricultural Chemicals

Manufacture fertilizer; using cyanamid, fruit pomace, alkali metal nitrates, ammonium sulfate, and superphosphate. No. 2,002,400. Edward T. Keenan, Frostproof, Fla., one-half to Florida Fruit Cannery, Inc., Frostproof, Fla.

Method processing fish material to be used as fertilizer; using formaldehyde during process. No. 2,003,887. Lawrence T. Hopkinson, Washington, D. C.

Production artificial manure from waste cellulose materials by bacterial action. No. 2,004,706. Ferdinand Adolphus Nuske, East Malvern, Victoria, Australia.

Preparation spray material; a flocculated bentonite characterized by failure to swell or disperse in water. No. 2,004,788. Edmund L. Green, Washington, D. C., dedicated to the free use of the Government and the People of the U. S.

Production of globular granules of mixed fertilizer with ammonium nitrate as main constituent. No. 2,005,997. Carl Krauch and Carl Eyer, Ludwigshafen-on-the-Rhine, Gottwald Baetz, Oggersheim, and Friedrich Korn, Ludwigshafen-on-the-Rhine, Germany, to I. G., Frankfurt-on-the-Main, Germany.

Cellulose

Method treating fibriform cellulose acetate, soluble in chloroform but insoluble in acetone, to render it soluble in acetone and yet preserve its fibrous structure. No. 2,002,674. Richard Muller and Martin Schenck, Mannheim, and Wilhelm Wirbacz, Mannheim-Waldhof, Germany, to C. F. Boehringer & Soehne G. m. b. H., Mannheim-Waldhof, Germany.

Production of a continuous web of cellulose ester plastic of uniform thickness. No. 2,002,711. Frederic A. Parkhurst, Bethesda, Md., and Gustavus J. Esselen, Swampscott, Mass., to Fiberloid Corp., Indian Orchard, Mass.

Production cellulose derivatives containing an inorganic substituent; treating cellulose ethyl ether with phosphorus oxychloride in presence of an organic diluent. No. 2,002,811. Max Hagedorn and Eugen Guhring, Dessau in Anhalt; Otto Reichart, Dessau-Ziebigk in Anhalt, Germany; to I. G., Frankfurt-am-Main, Germany.

Production artificial products of regenerated cellulose. No. 2,002,822. Herbert Mahn, Harry Meyer, and Hugo Pfannenstiel, Dessau in Anhalt, Germany, to I. G., Frankfurt-am-Main, Germany.

Preparation composition comprising a cellulose derivative and a bi-aryl ether of a polyglycol. No. 2,003,295. Emmette F. Izard, Elsmere, Del., to E. I. du Pont de Nemours & Co., Wilmington, Del.

Separation non-cellulosic constituents from lignified cellulose materials; digesting materials with an aqueous solution of a di-olefine glycol. No. 2,003,347. Henry Dreyfus, London, England.

Process acting upon a cellulose ester, containing still esterifiable OH groups, with a chloride of an acid ester of a polybasic acid. No. 2,003,408. Adolf Weihe, to Deutsche Celluloid-Fabrik, both parties of Eilenburg in Sachsen, Germany.

Manufacture of viscose from alpha cellulose obtained from purified cotton plant (from which the cotton has been removed). No. 2,003,696. Gideon Howard Palmer, East Orange, N. J.

Production continuous filament threads of cellulose acetate. No. 2,004,139. Wm. Ivan Taylor, Spondon, near Derby, England, to Celanese Corp. of America, a corporation of America.

Manufacture filaments, threads, films, etc. from viscose; spinning viscose into an aqueous coagulating bath containing a thiocyanate. No. 2,004,271. Henry Dreyfus, London, England.

Manufacture filaments, yarns, films and like extruded products from aqueous cellulosic solutions. No. 2,004,272. Henry Dreyfus, London, England.

Manufacture filaments, yarns, films, etc., from solutions of organic derivatives of cellulose. No. 2,004,273. Henry Dreyfus, London, England.

Process packaging set cellulose acetate yarn in a condition liable to produce contraction of the yarn after same is wound on the package. No. 2,004,274. Henry Dreyfus, London, England.

Manufacture artificial threads and other products from cellulose compounds. No. 2,004,877. Leon Lilienfeld, Vienna, Austria.

Production cellulose by digestion of vegetable growths with mixed nitric and organic acids. No. 2,005,190. Herman B. Kipper, Accord, Mass.

Manufacture of cellulose esters by esterifying with hydrohalide acid and hydrohalide of nitrogen containing base. No. 2,005,223. Henry Dreyfus, London, England.

Dyeing cellulose ester fibers with acridone compound. No. 2,005,303. Louis Spiegler and Henry R. Lee, South Milwaukee, Wis., to E. I. du Pont de Nemours & Co., Wilmington, Del.

Production non-discolorizing cellulose material by impregnation with stannous chloride. No. 2,005,378. Franz Kiel, Mannheim-Waldhof, Germany; one-half to Zellstoffabrik Waldhof, Mannheim-Waldhof, Germany.

Production strengthened absorptive paper by distribution of regenerated cellulose. No. 2,005,397. Milton O. Schur, to Brown Co., both of Berlin, N. H.

Esterification of cellulose with modified perchloric acid catalyst. No. 2,005,398. Cyril Staud, Rochester, N. Y., and James D. Coleman, Columbus, Ohio, to Eastman Kodak Co., Rochester, N. Y.

Production new cellulose derivative composition. No. 2,005,414. Harry B. Dykstra, to E. I. du Pont de Nemours & Co., both of Wilmington, Del.

Chemical Specialties

Preparation a cotton fiber spraying oil; consisting of a light lubricating oil having dissolved therein a water-soluble soap and lecithin. No. 2,002,885. James G. Detwiler, New York City; Theodore C. Heisig, Bayonne, and John E. Rosnell, Bound Brook, N. J.; and Frank W. Hall, Port Arthur, Tex., to Texas Co., New York City.

Preparation a stencil and marking ink: consisting of liquid shellac, turpentine, beeswax, pigment, and alcohol. No. 2,002,939. Wm. Ernest, Martinez, Cal., one-half to Emanuel H. Baer, Associated, Cal.

Production a metal drawing lubricant. No. 2,003,368. Alfred H. Kelling, Chicago, Ill., to International Patents Development Co., Wilmington, Del.

Production graphite lubricant; emulsion of degreas from which fatty acids have been removed, kerosene, water, turpentine, aqueous solution of ammonia, and graphite in suspension in emulsion. No. 2,003,564. Wm. Cowling Thorpe, to Robert Elroy Wark, both parties of Toronto, Canada.

Liquid adhesive adapted to vulcanize and firmly secure a plastic rubber composition containing sulfur to a leather-like surface; comprising crepe rubber, rosin, zinc dimethyl dithio carbamate, and benzol. No. 2,004,059. Roland R. Bollman, Mt. Washington, and Conrad L. Ornes, Cincinnati, O., to Perfect Mfg. Co., Cincinnati, O.

Manufacture an adhesive; mixture of cashew nut shell liquid and gelatin. No. 2,004,370. Mortimer T. Harvey, East Orange, N. J., to Harvel Corp., a corporation of N. J.

Manufacture a perborate soap powder containing sodium silicate and magnesium chloride uniformly distributed therein as stabilizing substance in amount equivalent to 0.1 to 0.3% of magnesium oxide on the weight of the soap powder. No. 2,004,670. Chas. Watson Moore, Warrington, Lancashire; and Horatio Ballantyne, Tadworth, Surrey, England, to Lever Bros., Ltd., Port Sunlight, England.

Preparation soap having an aliphatic open-chain alcohol, having from 8 to 20 carbon atoms, and corresponding to a fatty acid which is contained in naturally occurring fats. No. 2,004,874. Wilbur Arthur Lazier, Marshallton, Del., to E. I. du Pont de Nemours & Co., Wilmington, Del.

Process for producing high percentage transparent soaps. No. 2,005,160. Wilhelm Pape, Benrath-on-the-Rhine, Germany, to Procter and Gamble Co., Ivorydale, Ohio.

Process homogenizing and refining soap base by regulating temperature and forcing base through small orifice under pressure. No. 2,005,333. John W. Bodman, Winchester, Mass., to Lever Brothers Co., Cambridge, Mass.

Production insecticide of composition a solution in an organic solvent. No. 2,005,797. William Moore, Chappaqua, N. Y., to American Cyanamid Co., New York, N. Y.

Production of emulsion printing ink. No. 2,005,945. Earl H. McLeod, Rutherford, N. J., to The International Printing Ink Corp., New York, N. Y.

Grinding composition containing bentonite, water, abrasive, and a glycolic compound. No. 2,006,162. Herman C. Fuchs, to Permatex Co., both of Brooklyn, New York.

Contact insecticide composed of lecithin. No. 2,006,227. Euclid W. Bousquet, Wilmington, Del., to The Grasselli Chemical Co., Cleveland, Ohio.

Coal Tar Chemicals

Preparation anthraquinone derivative. No. 2,002,247. Wilhelm Moser, Riehen, near Basel, and Walter Fioroni, Binningen, near Basel, Switzerland, to Society of Chemical Industry in Basle, Basel, Switzerland.

Preparation anthraquinone derivative. No. 2,002,264. Hermann Hauser, Basel, and Max Bommer, Riehen, near Basel, Switzerland, to Society of Chemical Industry in Basle, Basel, Switzerland.

Preparation n-substituted derivative of sulfoanilines. No. 2,002,612. Wilhelm Neelmeier and Wilhelm Meiser, Leverkusen-I. G.-Werk, Germany, to General Aniline Works, New York City.

Apparatus and process for compressing coal in a chamber oven; retorts, etc. No. 2,002,614. Hermann Petsch, Recklinghausen, Germany, to Carl Still, Recklinghausen, Germany.

Method recovering from hot coal distillation gases a tar acid oil, readily extractable with aqueous caustic soda, for removal of tar acids therefrom. No. 2,002,704. Stuart Parmelee Miller, Englewood, N. J., to The Barrett Co., New York City.

Preparation methyl-anthraquinone; treating with a water soluble oxidizing agent. No. 2,002,988. Louis Spiegler, So. Milwaukee, Wis., to E. I. du Pont de Nemours & Co., Wilmington, Del.

Preparation indol compound. No. 2,003,421. Fritz Ballauf and Albert Schmelzer, Cologne-Mulheim, Germany, to General Aniline Works, New York City.

Production amino-arylthiazole compounds. No. 2,003,444. Richard Herz, Frankfurt-am-Main, and Max Schubert, Frankfurt-am-Main-Fechenheim, Germany, to General Aniline Works, New York City.

Treatment fuel gas to remove ammonia. No. 2,003,560. Mark Shoeld, Mt. Lebanon Township, Allegheny County, Pa., to Koppers Co. of Delaware, Pittsburgh, Pa.

Coking retort oven. No. 2,003,565. Joseph van Ackeren, O'Hara Township, Allegheny County, Pa., to Koppers Co. of Delaware, Pittsburgh, Pa.

Production organic products containing oxygen from aliphatic hydrocarbon oils containing unsaturated compounds. No. 2,003,584. Wilhelm Dietrich and Max Harder, Oppau, Germany, to I. G., Frankfurt-am-Main, Germany.

- Apparatus for utilizing heat transferring medium. No. 2,003,742. Philip H. Elliott, Charleston, W. Va., to Chemical Mfg. Co., Point Pleasant, W. Va.
- Water treating apparatus; for softening water. No. 2,003,762. Edw. T. Turner, Dayton, Ohio, to Permutit Co., (1934), Wilmington, Del.
- Composition for use in manufacture of containers, etc.; using paraffin wax, caustic potash in solution, pine rosin, and grain alcohol. No. 2,003,789. Robert L. Falls, Charlotte, N. C., five per cent. to J. F. Kelley, Rock Hill, S. C.
- Apparatus for determining toughness or resistance to breakage of abrasive bodies by impact. No. 2,003,863. Romie Lee Melton and John Fitzpatrick, to Carborundum Co., all parties of Niagara Falls, N. Y.
- Preparation solder for chain links; consisting of powdered tin, powdered copper, and borax. No. 2,003,865. John E. Pilling, Providence, R. I.
- Manufacture crystalline alumina and composition containing same. No. 2,003,867. Raymond R. Ridgway, Niagara Falls, N. Y., to Norton Co., Worcester, Mass.
- Process degrading a hydrocarbon; by exposing same to action of radiations from a rare gas lamp. No. 2,003,898. Waldemar O. Mitscherling, to Neon Research of Connecticut, Inc., both parties of Bridgeport, Conn.
- Manufacture an anhydrous hydrofluoric acid-ammonia composition. No. 2,003,907. John V. Shinn, Flushing, and Tom Cummings, Brooklyn, N. Y., to General Chemical Co., New York City.
- Production carbon dioxide from flue gases. No. 2,003,922. Roger J. Claret, to Natural By-Products Corp., both parties of New York City.
- Apparatus and process for manufacture of nitric acid. No. 2,004,000. Ingenium Hechenbleikner, to Chemical Construction Corp., both parties of Charlotte, N. C.
- Production pentaerythritol; condensing formaldehyde with acetaldehyde in aqueous solution in presence of an alkaline condensing agent. No. 2,004,010. Erich Naujoks, Constance, Germany, to Deutsche Gold & Silber-Scheideanstalt vormals Roessler, Frankfurt-am-Main, Germany.
- Production a bonding composition for discrete portions of solids; comprising a highly viscous colloidal inorganic non-crystalline liquid adhesive mass. No. 2,004,030. Willis A. Boughton, Cambridge, Mass., to New England Mica Co., Waltham, Mass.
- Apparatus and process for cleaning heating surfaces. No. 2,004,042. Otto Eberhardt, Karlsbad, Czechoslovakia, to A. Riebeck'sche Montanwerke Aktiengesellschaft, Halle Saale, Germany.
- Electrolytic cell for treatment of liquids. No. 2,004,065. Karl Kaiser, Munich, Germany.
- Preparation tertiary butyl acetic acid. No. 2,004,066. Frank C. Whitmore and Walter R. Trent, State College, Pa., and August H. Homeyer, St. Louis, Mo., to Mallinckrodt Chemical Works, St. Louis, Mo.
- Process chlorinating compounds of the class consisting of hydrocarbons of the paraffin, naphthene, and aromatic series, and their partially chlorinated derivatives. No. 2,004,072. Henry B. Hass and Earl T. McBeck, to Purdue Research Foundation, all parties of West Lafayette, Ind.
- Process forming ethanol; first absorbing ethylene in sulfuric acid. No. 2,004,084. Walton B. Scott, Lloyd S. Bovier, and Ernest D. Matthews, to Hooker Electrochemical Co., all parties of Niagara Falls, N. Y.
- Preparation a levulinic ester of a modified polyhydric alcohol. No. 2,004,115. Emmette F. Izard, Elsmere, and Paul L. Salzberg, to E. I. du Pont de Nemours & Co., all parties of Wilmington, Del.
- Cyanide process; a cyanide product containing calcium, sodium, carbon, and nitrogen, and substantially free from water soluble materials other than cyanides. No. 2,004,130. Edward J. Franke, Great Barrington, Mass., to E. I. du Pont de Nemours & Co., Wilmington, Del.
- Separation an unsaturated alcohol from a mixture comprising said alcohol and a saturated alcohol of at least the same number of carbon atoms. No. 2,004,131. Ebenezer E. Reid, Balto., Md., to E. I. du Pont de Nemours & Co., Wilmington, Del.
- Production phenyl carbamates of aminopropanediols. No. 2,004,132. Theodore H. Rider, Cincinnati, O.
- Production polyhydric alcohols. No. 2,004,135. Henry S. Rothrock, to E. I. du Pont de Nemours & Co., both parties of Wilmington, Del.
- Oxidizing ammonia to oxides of nitrogen; passing ammonia and a gas, containing oxygen, through a catalyst consisting of an alloy; alloy having solid surface coating of pure platinum. No. 2,004,141. John N. Tilley, Woodbury, N. J., and Harold Whitehead, So. Orange, N. J., one-half to E. I. du Pont de Nemours & Co., Wilmington, Del., and one-half to Baker & Co., Newark, N. J.
- Method recovering tetra alkyl lead from a lead sludge; adding engine oil and thiocarbamide to sludge, then distilling off the tetra alkyl lead. No. 2,004,160. Frederick B. Downing, Alfred E. Parmelee, and Chas. J. Pedersen, Carneys Point, N. J., and Jos. L. Stecher, Wilmington, Del., to E. I. du Pont de Nemours & Co., Wilmington, Del.
- Smelting furnace for black liquor. No. 2,004,205. Alfred G. Kernin, Mosinee, Wis., to Mosinee Paper Mills Co., Mosinee, Wis.
- Apparatus and means for operating breathing apparatus; solid chemical mixture capable of giving off oxygen especially for breathing or inhaling purposes in an exothermic reaction. No. 2,004,243. Albert Hloch, Lichterfelde, near Berlin, Germany, to I. G., Frankfurt-am-Main, Germany.
- Process for generating hydrocyanic acid. No. 2,004,332. Paul La Frone Magill, Niagara Falls, N. Y., to E. I. du Pont de Nemours & Co., Wilmington, Del.
- Binding agent for foundry sand cores; comprising an emulsion containing water, Chinawood oil, and an agent adapted to form amines with a portion of said oil. No. 2,004,344. Herbert L. Quandt and Julius N. Horak, to Quandt Chemical Co., all parties of San Francisco, Cal.
- Sand core binder; a plurality of sand-binting materials including Chinawood oil, all in the form of a permanent water-miscible aqueous emulsion. No. 2,004,345. Herbert L. Quandt, deceased, late of San Francisco, Cal., to Carrie Anna Quandt, executrix, San Francisco, Cal., and Julius J. Horak, San Francisco, Cal., to Quandt Chemical Co., San Francisco, Cal.
- Process condensation alcohols. No. 2,004,350. Norman D. Scott, Niagara Falls, N. Y., to E. I. du Pont de Nemours & Co., Wilmington, Del.
- Dry cleaning apparatus and method. No. 2,004,376. John E. Martin, to Band Box Corp., both parties of St. Louis, Mo.
- Method forming non-metallic refractory material. No. 2,004,378. Chas. McMullen, to Carborundum Co., both parties of Niagara Falls, N. Y.
- Apparatus for manufacture hydraulic cement. No. 2,004,381. Kristian Middleboe, Frederiksberg, near Copenhagen, Denmark, to F. L. Smith & Co., New York City.
- Production sound records from gelatinized acetyl cellulose. No. 2,004,400. Alfred Otto Thomas, Berlin-Steglitz, Germany.
- Production match; head provided with coating comprising a synthetic resin; coating being impervious to moisture but so thin as to have no effect on striking qualities of match. No. 2,004,436. Alphons O. Jaeger, Mt. Lebanon, Pa., to American Chemical & Cyanamid Corp., New York City.
- Production hydraulic cement; a dry granular mixture of ground calcium carbonate rock and a clinker derived from burning a mixture of calcium carbonate and aluminum silicate. No. 2,004,463. Gerald Otley Case, Sevenoaks, England, to Carbo Plaster, Ltd., Westminster, England.
- Production flexible sheet of abrasive material; using abrasive material and a base having a coating of polyhydric alcohol with polybasic acid and a mixture of fatty oil acids. No. 2,004,466. Jos. B. Dietz, Lansdowne, and Henry L. Plummer, Phila., Pa., to E. I. du Pont de Nemours & Co., Wilmington, Del.
- Manufacture a stencil sheet; being a sheet of Yoshino paper coated with a composition of coagulated, water-resistant gelatin, soap, and an oil. No. 2,004,484. Louis G. Brandt, Portsmouth, Va., to Multistamp Co., Norfolk, Va.
- Production butadiene by catalytic dehydration of 1, 3-butylene glycol by action of heat. No. 2,004,521. Martin Mueller Cunradi, Ludwigshafen-am-Rhine, and Ernst Ober, Mannheim, Germany, to I. G., Frankfurt-am-Main, Germany.
- Process for separate recovery of base metals capable of forming metal carbonyls from a material containing at least two of such metals. No. 2,004,534. Carl Muller, Mannheim; Leo Schlecht, Ludwigshafen-am-Rhine; and Emil Keunecke, Oppau, Germany, to I. G., Frankfurt-am-Main, Germany.
- Production porous building materials; making a hydraulic mineral binding medium into a frothy pulp together with water, waterglass, and a true sulfonic acid substance of an aromatic compound. No. 2,004,545. Hans Wolf and Hermann Leuchs, Ludwigshafen-am-Rhine; and Hans Saenger, Bitterfeld, Germany, to I. G., Frankfurt-am-Main, Germany.
- Recovery vapor phase oxidation products and apparatus for same. No. 2,004,586. Riewen Riegler, Buffalo, N. Y., to National Aniline & Chemical Co., New York City.
- Production a refractory article comprising silicon carbide and a bond containing calcium fluoride. No. 2,004,594. Raymond C. Benner and Henry N. Baumann, Jr., to Carborundum Co., all parties of Niagara Falls, N. Y.
- Manufacture silicon carbide refractory articles; admixing with silicon carbide grain a carbonaceous temporary binder and a vitrifiable binder. No. 2,004,595. Raymond C. Benner and Henry N. Baumann, Jr., to Carborundum Co., all parties of Niagara Falls, N. Y.
- Carbon removing composition composed of kerosene, creosote, castor oil, and amyl acetate. No. 2,004,628. Chas. Rexford Keen and Clyde Elmer Moore, San Diego, Cal.
- Method recovering nitric acid from nitrosyl chloride and utilizing same in a cyclic process. No. 2,004,663. Oskar Kaselitz, Berlin, Germany.
- Catalytic apparatus. No. 2,004,758. Alphons O. Jaeger, Crafton, Pa., to American Cyanamid & Chemical Corp., New York City.
- Production N (para-amino-phenyl) morpholine. No. 2,004,763. Herbert A. Lubs, to E. I. du Pont de Nemours & Co., both parties of Wilmington, Del.
- Preparation N (p-amino-phenyl) morpholine; adding N (p-nitroso-phenyl) morpholine hydrochloride to an aqueous solution of a sulfide of an alkali metal. No. 2,004,764. Herbert A. Lubs and Geo. Clifford Strouse, to E. I. du Pont de Nemours & Co., all parties of Wilmington, Del.
- Composition containing a high melting wax, rosin, and non-drying fatty oil, to produce an adhesive material suitable for use in insulating friction tape. No. 2,004,781. Frank M. Clark and Ralph A. Ruscetta, Pittsfield, Mass., to General Electric Co., a corporation of N. Y.
- Active or toxic spray material; comprising copper silicate and lime. No. 2,004,789. Edmund L. Green, Washington, D. C., dedicated to the free use of the Government and the People of the U. S.
- Process for preparing ammonium sulfite or bisulfite solutions. No. 2,004,799. Roger W. Richardson, to E. I. du Pont de Nemours & Co., both parties of Wilmington, Del.
- Method stabilizing peroxide solutions; by adding a pyrophosphoric acid-tin compound. No. 2,004,809. Harvey N. Gilbert and Jos. S. Reichert, Niagara Falls, N. Y., to E. I. du Pont de Nemours & Co., Wilmington, Del.
- Manufacture potassium oxalate from potassium formate. No. 2,004,867. Emil Hene, Berlin, Germany, to Rudolph Koepf & Co., Chem. Fabrik, A. G., Oestrich, Germany.
- Apparatus for use in Kjeldahl digestions. No. 2,004,868. Abraham Henwood, Cynwyd, and Raymond M. Garey, Willow Grove, Pa.
- Production thiosulfate esters. No. 2,004,873. Alfred Kirstahler, Dusseldorf, and Wilhelm Jacob Kaiser, Dusseldorf-Benrath, Germany.
- Process for removing yellowness and opalescence in artificial materials prepared from a solution of a xanthated product and containing free sulfur. No. 2,004,875. Leon Lilienfeld, Vienna, Austria.
- Process for refining artificial materials made from a solution containing a xanthate of an oxy-organo derivative of cellulose by wet spinning. No. 2,004,876. Leon Lilienfeld, Vienna, Austria.
- Production acid-containing container of iron or steel partially filled with concentrated orthophosphoric acid. No. 2,004,926. Howard Adler and Willard H. Woodstock, to Victor Chemical Works, all of Chicago Heights, Ill.
- Process for fluorination of carbon compounds. No. 2,004,931. Herbert Wilkens Daudt and Edwin Lorenzo Mattison, to Kinetic Chemicals, Inc., all of Wilmington, Del.
- Production of fluorine compounds by reacting carbon bisulfide with organic fluoride and antimony penta-chloride. No. 2,004,932. Herbert Wilkens Daudt, Mortimer Alexander Youker, and Harold La Belle Jones to Kinetic Chemicals, Inc., all of Wilmington, Del.
- Production of amides. No. 2,004,994. John Lee, Zurich, Switzerland to E. R. Squibb & Sons, New York, N. Y.
- Process intensifying the color of carbon black by continuous agitation and slow oxidation to increase stable oxygen content. No. 2,005,022. Edward H. Damon, Skellytown, Tex., to Cabot Carbon Co., Pamppe, Tex.
- Production shellac solution for etched photographic printing forms by dissolving shellac in alkaline aqueous solution. No. 2,005,060. Max Thimann, Cologne-Braunsfeld, Germany to Dr. Bekk & Kaulen Chemische Fabrik G. m. b. H., Loevenich, near Cologne, Germany.
- Production acoustical plaster or tile by mixing granules of pumice and cork in ratio 3 to 1. No. 2,005,069. Napoleon M. Bernier, Cambridge, Mass.
- Process for recovery iron salts from iron sulfate solution by heating with small amount free acid. No. 2,005,120. Joshua C. Whetzel, and Rufus E. Zimmerman, Pittsburgh, Pa., to American Sheet and Tin Plate Co., a corporation in New Jersey.
- Process for catalytic oxidation of ketones. No. 2,005,183. Walter Fleming and Walter Speer, Ludwigshafen-on-the-Rhine, Germany, to I. G. Farbenindustrie Aktiengesellschaft, Frankfurt-on-the-Main, Germany.
- Process improving baking qualities of flour by adding substance from methane series combined with chlorinated nitrogen. No. 2,005,268. Rudolf Ruter, Cologne-Deutz, Germany.

2,003,068. Michael J. Callahan, Parlin, N. J., to E. I. du Pont de Nemours & Co., Wilmington, Del.

Production deoxidized copper. No. 2,003,296. Herbert C. Jennison, Bridgeport, and Richard B. Montgomery, Seymour, Conn., to American Brass Co., Waterbury, Conn.

Production of an aluminum base alloy comprising magnesium, copper, manganese, chromium, and aluminum. No. 2,003,297. Fred. Keller and Richard S. Merritt, New Kensington, Pa., to Aluminum Co. of America, Pittsburgh, Pa.

Conversion of liquid hydrocarbons into oxygenated compounds. No. 2,003,303. Waldemar O. Mitscherling, to Neon Research of Connecticut, Inc., both parties of Bridgeport, Conn.

Fabric for protecting silverware from tarnish; suitable wrapping materials impregnated with silver ferrocyanide. No. 2,003,333. Kenneth H. Barnard, West Newton, and Henry F. Kane, Lawrence, Mass., to Pacific Mills, Lawrence, Mass.

Production of clad metals consisting of tungsten and copper. No. 2,003,481. Louis F. Ehrke, Newark, N. J., to Westinghouse Lamp Co., East Pittsburgh, Pa.

Production substantially pure magnesium. No. 2,003,487. Fritz Hansgirt, Radenthein, Austria, to American Magnesium Metals Corp., Pittsburgh, Pa.

Production aluminum alloy consisting of aluminum, magnesium, boron, vanadium, and zinc. No. 2,003,524. Thos. H. Warner, Union City, N. J., to Metal Alloys, Inc., Wilmington, Del.

Production brass alloy containing copper, aluminum, arsenic, and zinc. No. 2,003,685. John R. Freeman, Jr., Cheshire, Conn., to American Brass Co., Waterbury, Conn.

Removal iron and iron compounds, other than iron sulfides, from surfaces and interstices of lead sulfide mineral; by treating lead sulfide mineral with an acid. No. 2,003,711. Fred. E. Gregory, Galena, Kans., and Raymond L. Hallows, Joplin, Mo., to Eagle-Picher Lead Co., Cincinnati, O.

Manufacture deoxidized copper and copper alloys. No. 2,003,889. Herbert C. Jennison, Bridgeport, and Richard B. Montgomery, Seymour, Conn., to American Brass Co., Waterbury, Conn.

Production alloy steels; comprising carbon, manganese, silicon, chromium, and iron. No. 2,004,331. Joel Larsson, Hofors, Sweden, and Haakon Styri, Phila., Pa., to S K F Industries, Phila., Pa.

Manufacture a solder for aluminum and its alloys. No. 2,004,372. Alexander Luschenowsky, Berlin, Germany, to Kuppers Metallwerke G. m. b. H., Bonn-am-Rhine, Germany.

Production alloys of columbium from material containing oxides of columbium and tantalum. No. 2,004,498. Frederick M. Becket, New York City, to Electro Metallurgical Co., N. Y. City.

Production chromium steel alloys by the basic process. No. 2,004,836. Ernst Hermann Schulz, Dortmund, Germany, to Vereinigte Stahlwerke Aktiengesellschaft, Dusseldorf, Germany.

Process and device for production of iron alloys free from gases, especially oxygen. No. 19,610—reissue. Carl Brackelsberg deceased, late of Milsepe, Germany, by Augusta Brackelsberg, administratrix, Milsepe, Germany.

Process for spot welding refractory metals. No. 2,005,256. William W. Eitel and Jack McCullough, San Bruno, Cal., to Heintz & Kaufman, Ltd., San Francisco, Cal.

Production rustless iron and steel high in chromium and nearly free of silicon. No. 2,005,409. William Bell Arness, to Rustless Iron Corp. of America, both of Baltimore, Md.

Electric resistant alloy of chromium 20%, nickel 80%, and cadmium from .03 to .2%. No. 2,005,423. Matthew A. Hunter, Troy, N. Y., to Driver-Harris Co., Harrison, N. J.

Nickel-chromium alloy of 15 to 25% chromium, 1 to 20% molybdenum, .1 to 1.0% zirconium, trace calcium, balance nickel. No. 2,005,430. James M. Lohr, Morristown, N. J., to Driver-Harris Co., Harrison, N. J.

Nickel-chromium alloy of 15 to 25% chromium, .01 to .20% calcium, .01 to .50% zirconium, .01 to 1% aluminum, balance nickel. No. 2,005,431. James M. Lohr, Morristown, N. J., to Driver-Harris Co., Harrison, N. J.

Nickel-chromium-iron alloy of 10 to 18% chromium, 17 to 30% iron, 1 to 20% molybdenum, .1 to 1.0% zirconium, .01 to .2% calcium, balance nickel. No. 2,005,432. James M. Lohr, Morristown, N. J., to Driver-Harris Co., Harrison, N. J.

Nickel-chromium-iron alloy of 10 to 15% chromium, 25 to 30% iron, .01 to .2% calcium, .01 to .5% zirconium, .01 to 1.0% aluminum, balance nickel. No. 2,005,433. James M. Lohr, Morristown, N. J., to Driver-Harris Co., Harrison, N. J.

Method of incorporating reagent in bath of molten metal. No. 2,005,540. Edward P. Fleming, Salt Lake City, Utah, and Sidney L. Palmer, San Francisco, Cal., to American Smelting and Refining Co., New York, N. Y.

Pickling process for metals by use of a dilute acid and organic bases separated from shale oil. No. 2,005,605. Vanderveer Voorhees, Hammond, Ind., to Standard Oil Co., Chicago, Ill.

Concentration of ores by dispersing free xanthic acid in alkaline ore pulp. No. 2,006,049. Cornelius H. Keller, San Francisco, Calif., to Minerals Separation North American Corp., New York, N. Y.

Pickling bath for metals of dilute, non-oxidizing acid and small amount of organic substance. No. 2,006,216. Arthur MacArthur and Anthony James Hallwood, Blackley, Manchester, England, to Imperial Chemical Industries Ltd., a corporation of Great Britain.

Alloy steel of .01 to .60% carbon, .3 to 2% chromium, .15 to 3% copper, .25 to 3% silicon, .07 to .75% phosphorus, .02 to .50% manganese, .10% sulfur, balance iron. No. 2,006,304. Jerome Strauss, Pittsburgh, Pa., to U. S. Rustless Steel and Iron Corp., Bridgeville, Pa.

Naval Stores

Method dehydrating pine oil; heating oil in presence of silica gel and an organic dibasic acid. No. 2,003,458. Sereno G. Norton, Brunswick, Ga., to Hercules Powder Co., Wilmington, Del.

Preparing a sulfonated product; reacting mixture of a polymerized terpene and an organic compound with a sulfonating acid. No. 2,003,471. Alfred L. Rummelsburg, to Hercules Powder Co., both parties of Wilmington, Del.

Paper and Pulp

Method modifying surface characteristics of a paper or similar base bearing an ink impression; by application of a transparent film-forming solution containing casein and gelatin in an aqueous vehicle. No. 2,003,065. Chas. M. Boyce, Cedar Rapids, Iowa, to John R. Ditmars, New York City.

Deinking imprinted paper by agent selected according to pH value of stock. No. 2,005,742. Pierre R. Hines, Portland, Oreg.

Priming solution for wall paper of; 50 parts silicate of soda solution, 44 parts water, 6 parts 12½% copper sulphate. No. 2,005,900. George Littig, Sacramento, Calif.

Production of pigmented paper by adding undried zinc sulfide to pulp. No. 2,006,016. Alwin C. Eide and John Henry Calbeck, Columbus, Ohio, to American Zinc, Lead and Smelting Co., St. Louis, Mo.

Process for dull finish coated paper by applying uncooked starch to paper and swelling starch by drying. No. 2,006,208. Donald B. Bradner, Oxford, Ohio, to The Champion Coated Paper Co., Hamilton, Ohio.

Process for dull finish coated paper by applying aqueous cellulose coating, drying, and calendering. No. 2,006,209. Donald B. Bradner, Oxford, Ohio, to The Champion Coated Paper Co., Hamilton, Ohio.

Petroleum Chemicals

Method storing volatile hydrocarbons, particularly butanes. No. 2,001,996. Walter G. Whitman, Whiting, Ind., to Standard Oil Co., Chicago, Ill.

Process for separation of asphalt from an asphalt containing oil. No. 2,002,004. Earle W. Gaard, Palos Verdes Estates, Cal., to Union Oil Co. of Cal., Los Angeles, Cal.

Apparatus for automatic control of anti-knock liquids. No. 2,002,482. Leo B. Kimball, New Haven, Conn., to Fuel Development Corp., a corporation of Delaware.

Production road oil, having property of preferential wetting of road aggregates in presence of water. No. 2,002,652. Peter Alexandroff, London, England, to Shell Development Co., San Francisco, Cal.

Method making oxidized asphalt. No. 2,002,670. Elliott B. McConnell, to Standard Oil Co., both parties of Cleveland, O.

Preparation a soap-mineral oil grease. No. 2,002,819. Gus Kaufman, Beacon, N. Y., to Texas Co., New York City.

Process for removing gum and gum forming constituents from cracked petroleum distillates. No. 2,002,902. Samuel M. Martin, Jr., Pittsburgh, and Wm. A. Gruse, Wilkinsburg, Pa., to Gulf Refining Co., Pittsburgh, Pa.

Process of separating mineral oil into fractions more paraffinic and more naphthenic than the original oil. No. 2,003,237. Harry T. Bennett, to Mid-Continent Petroleum Corp., both parties of Tulsa, Okla.

Process using selective solvents to separate lubricating oil into fractions more paraffinic and less paraffinic than the original oil. No. 2,003,238. Harry T. Bennett, to Mid-Continent Petroleum Corp., both parties of Tulsa, Okla.

Process treating oils having different constituents. No. 2,003,239. Harry T. Bennett, to Mid-Continent Petroleum Corp., both parties of Tulsa Okla.

Method recovering alkali metal naphthenates from mineral oil sludge. No. 2,003,640. Julius A. Wunsch, New York City.

Removal solid-paraffin from hydrocarbon oil by filtration under pressure at low temperature. No. 2,003,664. Francis X. Govers, Vincennes, Ind., to Indian Refining Co., Lawrenceville, Illinois.

Preparation oil well drilling mud; consisting of bentonite in combination with a flaky, cellular material such as iron oxide. No. 2,003,701. Thane K. Stinson, to Geo. S. Mephram Corp., both parties of East St. Louis, Ill.

Production asphalt from the unvaporized oil formed in the pressure zone of an oil cracking system. No. 2,004,210. Jacques C. Morrell, to Universal Oil Products Co., both parties of Chicago, Ill.

Chemical heating apparatus for oil wells. No. 2,004,452. James R. Vandever, Pampa, Texas, to Richard P. Abele, Tulsa, Okla.

Production of unemulsified product to add to bitumens rendering bitumens more suitable for roadways. No. 2,005,113. Orvall Smiley, Indianapolis, Ind.

Apparatus for fractionating hydrocarbon oil vapor. No. 2,005,316. Frank W. Hall, Port Arthur, Tex., to The Texas Company, New York, N. Y.

Apparatus for precise analytical distillation and fractionation. No. 2,005,323. Wallace A. McMillan, Beacon, N. Y., to The Texas Company, New York, N. Y.

Production of hydrocarbons by reacting hydrocarbons of benzene series with gaseous olefin in presence of phosphoric acid catalyst. No. 2,005,861. Vladimir Ipatieff, Chicago, Ill., to Universal Oil Products Co., Chicago, Ill.

Separation of oil from fuller's earth by use of hot brine solution. No. 2,006,088. Edward Ross Mitchell; one-half to Russel Kendall, both of Sarnia, Ontario, Canada.

Pigments

Manufacture titanite oxide from a titanium ore. No. 19,594. Reissue. Karl Leuchs, Berlin-Zehlendorf, Germany, to Krebs Pigment & Color Corp., a corporation of Delaware.

Preparation coating composition; using a pigment, bituminous material, a drying oil, and the reaction product obtained by heating a mixture of asphalt oil and sulfur. No. 2,002,634. Harold S. Holt, to E. I. du Pont de Nemours & Co., both parties of Wilmington, Del.

Manufacture bronze and bronze powders; mixture of flaked aluminum particles, stearic acid, aluminum stearate, and "Varnolene." No. 2,002,891. Everett J. Hall, Elizabeth, N. J.; Harriet L. Hall, executrix of said Everett J. Hall, deceased; to Metals Disintegrating Co., Elizabeth, N. J.

Improvement in manufacture of iron blues. No. 2,005,697. Samuel Felton Grove, Swarthmore, Pa., to Henry Bower Chemical Manufacturing Co., Philadelphia, Pa.

Production of improved iron blues by reacting dissolved ferrous salt and suspended sparingly soluble double ferrocyanide of an alkali and a metal. No. 2,005,698. Samuel Felton Grove, Swarthmore, Pa., to Henry Bower Chemical Manufacturing Co., Philadelphia, Pa.

Calcining of pigment improved by raising atmospheric pressure above vapor pressure and introducing inert gas into atmosphere. No. 2,006,187. George F. A. Stutz, Palmerton, Pa., to The New Jersey Zinc Co., New York, N. Y.

Resins, Plastics, etc.

Process stabilizing a hydrophilic dispersion of thermoplastic material; incorporating therein a tannin material and a protective colloid, and mixing a heavy metal salt with dispersion. No. 2,002,505. Arthur Warren Hixson, Leonia, N. J., and Jacob Mitchell Fain, Brooklyn, N. Y.

Reacting thiodicyandiamidine with formaldehyde to produce a condensation product suitable for use as a heat-setting plastic material. No. 2,002,540. Wilhelm Kraus, Vienna, Austria, to American Cyanamid Co., New York City.

Preparation molding composition; a mixture of an infusible but thermoplastic condensation product of a primary aromatic amine and a formaldehyde yielding compound with a fusible aldehyde condensation product. No. 2,002,601. Alphonse Gams and Karl Frey, Basel, Switzerland, to Ciba Products Corp., Dover, Del.

Production reaction product of an organic acid amide and an alkylene oxide. No. 2,002,613. Ludwig Orthner, Leverkusen-I. G.-Werk, Germany, and Helmut Keppler, Leverkusen-Schleibusch, Germany, to General Aniline Works, New York City.

Production plastic materials. No. 2,002,800. Walther Schrauth, Berlin-Dahlem, Germany, to Deutsche Hydrierwerke Aktiengesellschaft, Berlin-Charlottenberg, Germany.

Method of compositing a sheet of cellulose plastic and a glass sheet; coating face of glass sheet with a solution of a boron compound and a weak acid. No. 2,003,288. Earl L. Fix, New Kensington, and Brook J. Dennison, Tarentum, Pa., to Duplate Corp., a corporation of Delaware.

Manufacture new oil-soluble artificial resinous compositions. No. 2,003,291. Rowland Hill, Cheadle Hulme, England, to Imperial Chemical Industries, Ltd., London, England.

Method of permanent mold manufacture. No. 2,003,864. Leo F. Nock, Elyria, O.

Preparation a synthetic resin; reacting a partial acetic acid ester of a polyhydric alcohol with a resin acid. No. 2,004,297. Geo. W. Seymour and Blanche B. White, Cumberland, Md., to Celanese Corp. of America, a corporation of Delaware.

Molding apparatus; piston sand core. No. 2,004,661. Frank Jardine, Cleveland, O., to Aluminum Co. of America, Pittsburgh, Pa.

Production a homogeneous, fusible, oil-soluble resin; using glycerol, phthalic acid, maleic acid, and an amount of acids obtained on hydrolysis of a fatty triglyceride sufficient to make the product oil-soluble. No. 2,004,880. Israel Rosenblum, Jackson Heights, N. Y.

Forming plastic composition from cotton in the form of threads; using thermoplastic binder during process. No. 2,004,956. John J. Martin, Brooklyn, N. Y., to Bell Telephone Labs., New York City.

Production urea-formaldehyde molding powder; using precipitated zinc carbonate in an aqueous mixture of urea and formaldehyde. No. 2,004,970. Rene Armenault, Paris, France, one-half to Fabriques de Produits de Chimie Organique de Laire, Societe Anonyme, Issy, France.

Production plastic composition from cotton by partially esterifying cotton threads, mixing with binder, heating in mold under pressure. No. 2,004,956. John J. Martin, Brooklyn, N. Y., to Bell Telephone Laboratories, Inc., New York, N. Y.

Production of urea-formaldehyde condensation products and artificial matter therefrom. No. 2,004,970. Rene Armenault, Paris, France, to Fabriques de Produits de Chimie Organique de Laire, Societe Anonyme, Issy, France.

Process condensing urea with formaldehyde or the polymeric bodies thereof and the product thus obtained. No. 2,004,996. Julien Malet and Rene Armenault, Paris, France; one-half to Fabriques de Produits de Chimie Organique de Laire, Societe Anonyme, Issy-les-Moulineaux, France.

Recovery of ingredients of plastic materials. No. 2,005,381. Homer R. McDougal, to Eastman Kodak Co., both of Rochester, N. Y.

Process making resins by heating polyhydric alcohol, aliphatic aldehyde, fatty oil, and resinifying polycarboxylic acid. No. 2,005,499. Rowland Hill, Cheadle Hulme, England, to Imperial Chemical Industries, Ltd., Westminster, England.

Oil soluble resin comprising condensation product of a methylene agent and a cyclohexyl phenol. No. 2,006,189. Victor H. Turkington, Caldwell, N. J., to Bakelite Corp., New York, N. Y.

Production of resins by hydrogenating oil-free asphaltene. No. 2,006,199. Stewart C. Fulton, Elizabeth, and Vladimir Kalichevsky, Woodbury, N. J., to Standard-I. G. Co.

Production oil-soluble synthetic resin by reacting oxidation mixture of formaldehyde, higher aldehydes, and methanol. No. 2,006,207. Madhav R. Bhagwat, Elizabeth, N. J., to Combustion Utilities Corp., New York, N. Y.

Rubber

Method of cold vulcanizing rubber compounds; by treatment with a small amount of sulfur chloride in presence of a member of the group of nitrogen-containing hydrocarbon compounds. No. 2,002,067. Douglas Frank Twiss, Wyde Green; Albert Edward Toney Neale, Ward End; and John Alexander Wilson, Erdington, England, to Dunlop Tire & Rubber Corp., Buffalo, N. Y.

Production colored rubber products containing a water insoluble disazo dyestuff. No. 2,002,174. Heinz Eichwede, Frankfurt-am-Main-Hochst, Germany, to General Aniline Works, New York City.

Treatment gutta percha; first step being cold leaching of the resins from the gutta-hydrocarbon by petroleum naphtha. No. 2,002,204. John H. Ingmanson, Rahway, N. J., and Geo. S. Mueller, Richmond Hill, N. Y., to Bell Telephone Labs., New York City.

Production rubber coated ferrous base articles. No. 2,002,263. Elgin Carleton Domm, Niles, Mich., to National Standard Co., Niles, Mich.

Production brass coated ferrous base articles, vulcanizing a coating of rubber thereon. No. 2,002,261. Elgin Carleton Domm, Niles, Mich., to National Standard Co., a corporation of Michigan.

Production rubber coated ferrous base articles. No. 2,002,262. Elgin Carleton Domm, Niles, Mich., to National Standard Co., Niles, Mich.

Process stabilizing artificial and natural latex. No. 2,002,622. Ira Williams, Woodstown, N. J., and Benton Dales, Chadds Ford, Pa., to E. I. du Pont de Nemours & Co., Wilmington, Del.

Treatment rubber; incorporating prior to vulcanization products obtainable by hydrogenating carbazole until at least part of this latter is soluble in acetic acid of 10% strength. No. 2,002,639. Herbert A. Lubs, Wilmington, Del., and Ira Williams, Woodstown, N. J., to E. I. du Pont de Nemours & Co., Wilmington, Del.

Manufacture rubber thread. No. 2,002,640. Norman G. Madge, Providence, R. I., to U. S. Rubber Co., New York City.

Preservation fruits and vegetables; by coating with a latex solution. No. 2,003,191. Wilhelm J. H. Hinrichs, Hamburg, and Hermann Wittkowski, Lockstedt-Niendorf, near Hamburg, Germany.

Producing moisture-proof and airtight coatings on articles of commerce including, eggs, smoked articles, etc.; coatings being of latex. No. 2,003,192. Wilhelm J. H. Hinrichs, Hamburg, and Hermann Wittkowski, Lockstedt-Niendorf, near Hamburg, Germany.

Process for facilitating complete impregnation of textiles with rubber latex. No. 2,004,029. Jean Etienne Charles Bongrand, Paris, and Leon Sylvain Max Lejeune, Wasquehal, France.

Production porous rubberized fabric. No. 2,004,110. Percy Herbert Head, Attenborough, England, to Xetal Products, Ltd., Long Eaton, near Nottingham, England.

Preservation latex; preservative containing phenol, soap, and one or both of the following: ammonia and alkali metal hydroxide. No. 2,004,156. Wallace Ellwood Cake, Boenet, Asahan, Sumatra, Dutch West Indies, to General Rubber Co., New York City.

Manufacture printing rollers; mixing concentrated aqueous caoutchouc dispersion, a gelatinous substance, and glycerine; coagulating mixture, then vulcanizing. No. 2,004,508. Curt Neubert, Giersdorf, near Hirschberg, Germany.

Production chlorinated rubbers by oxidizing reaction and subsequent chlorination. No. 2,005,320. Wallace A. McMillan, Beacon, N. Y., to The Texas Company, New York, N. Y.

Production rubber for electrical insulation and water-proofing by dispersing ammonium soap of wax in creamed latex. No. 2,005,382. John McGavack, Leonia, and Ralph F. Tefft, Nutley, N. J., to U. S. Rubber Co., New York, N. Y.

Vulcanization of rubber by previous treatment with thiuram polysulphide and thiuram monosulphide. No. 2,006,057. Alfred J. Northam, to E. I. du Pont de Nemours & Co., both of Wilmington, Del.

Treatment of rubber with mixture of octodeyl and octodeceny alcohol. No. 2,006,184. Walther Schrauth, Berlin-Dahlem, Germany, to "Unichem" Chemikalien Handels A.-G., Zurich, Switzerland.

Production of colored rubber products by mixing rubber product with water-insoluble monoazo-dyestuff. No. 2,006,211. Ernst Fischer, Frankfurt-on-the-Main-Hochst, Germany, to General Aniline Works, Inc., New York, N. Y.

Compounding rubber with oil-resin of 1 to 5 parts polymerized cumarone resin, 5 to 1 parts crystalline free coal tar oil. No. 2,006,310. Arthur B. Cowdery, Needham, Mass., to The Barrett Co., New York, N. Y.

Textile, Rayon

Treatment fabrics whose fibres contain cellulose acetate; using a reagent and a hot bath containing ferric chloride. No. 2,002,083. Henry Dreyfus, London, England.

Method producing permanent finish effects on vegetable cellulose fibers; using bath containing cuprammonium and a free alkali metal hydroxide. No. 2,002,106. Albert Bodmer and Ernst Weiss, Wattwil, Switzerland, to Heberlein Patent Corp., New York City.

Production textiles improved properties; treating with an organic derivative of cellulose, and having a size thereon in a bath containing a dyestuff and an organic solvent for the size; textiles simultaneously being desized and dyed. No. 2,003,409. Wm. Whitehead, Cumberland, Md., to Celanese Corp. of America, a corporation of Delaware.

Inhibiting corrosion of ferrous metal by pickling in spin bath solution previously employed in viscose process. No. 2,005,601. William P. ter Horst, Bay Village, Ohio, to Industrial Rayon Corp., Cleveland, Ohio.

Manufacture of textiles impregnated with rubber. No. 2,005,637. Philip Schidrowitz, London, England, to Filastic Holding S. A., Binningen, near Basel, Switzerland.

Removal of wool from animal skins by boiling in dilute mineral acid and finely divided non ferrous metal. No. 2,005,746. Wolf Kritchevsky, Chicago, Ill.

Removal of wool from animal skins by boiling in dilute phosphoric acid solution. No. 2,005,747. Wolf Kritchevsky, Chicago, Ill.

Treatment of filaments, threads, yarns, by applying oil from hydrogenating unsaturated fat or oil. No. 2,005,785. Harold Maximilian Hibbert and Robert Pierce Roberts, Spondon, near Derby, England, to Celanese Corporation of America, a corporation in Delaware.

Washing and bleaching apparatus for artificial yarns. No. 2,006,154. Aldo Bazzocchi, Milan, Italy.

Water, Sewage Treatment

Process purifying water; bringing into contact with a flowing stream of water, substances consisting of burned clay and carbonized material. No. 2,003,314. Brinton Russell and Cecil B. Russell, Norristown, Pa., to Attapulugus Clay Co., Phila., Pa.

Regenerative base exchange water softening apparatus. No. 2,003,739. Thos. B. Clark, Rockford, Ill., to Permutit Co. (1934), Wilmington, Del.

Method treating a zeolite to improve it for conjointly removing hardness and colloids from water. No. 2,004,257. Frederick Tschirner, Medford, N. J., to Zeolite Chemical Co., New York City.

Process softening boiler feed water; first adding to feed water soluble phosphates to flocculate and precipitate impurities as insoluble phosphates. No. 2,004,694. James M. Gillet, Evanston, Ill., to Victor Chemical Works, Chicago, Ill.

Japanese Caustic Production

Japanese Bleaching Powder Manufacturers' Guild reports production during the first 4 months of '35 for caustic soda at 23,566 metric tons and for bleaching powder at 21,610 tons, representing gains of 1,434 tons and 199 tons, respectively, over the same period of 1934. The figures do not include the output of independent companies or the material made and consumed by members in the producing establishments.

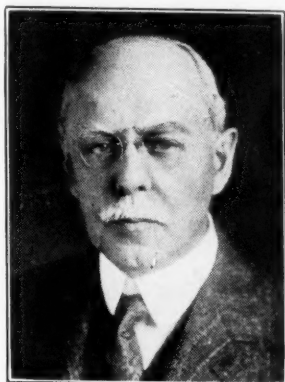
It is reported that the Japan Electrical Industrial Company, Ltd., has applied for a license to erect a plant for the production of caustic and allied products. This plant will be erected in Kanagawa Prefecture and will have an annual capacity of 11,000 metric tons of caustic, 14,400 tons of hydrochloric, 2,880 tons of liquid chlorine, and 1,800 tons of bleaching powder.

Chemical Markets & News

¶Dr. Arthur D. Little, Dean of American Chemical Engineers, Dies Suddenly while Vacationing in Maine—Only Recently Became Chairman of the Board of Arthur D. Little, Inc., in an Effort to Lighten Business and Research Activities—U. S. Export Trade Expands in '35—Chemical Shipments in Heavier Volume as Improvement in Consuming Industries Takes Place—

Dr. Arthur D. Little, dean of American chemical engineers, is dead at the age of 71. By his death the industry suffers a tremendous loss. His leadership will be sorely missed for years to come in many branches of the chemical engineering field.

Dr. Little died suddenly on Aug. 1 at the Rock End Hotel, Northeast Harbor, Me., where he was spending the summer



DR. ARTHUR D. LITTLE
He defined the "Fifth Estate".

with Mrs. Little. He was chairman of the board of Arthur D. Little, Inc., of Cambridge, internationally known chemists and engineers, which he founded with the late Roger B. Griffin 49 years ago. He but recently became chairman of the board, retiring from the presidency early this year in an effort to lighten the burdens of directing the famous research organization that bears his name.

Dr. Little was born in Boston on Dec. 15, 1863. Besides his wife, formerly Henrietta Rogers Anthony, he leaves a brother, Edward H. Little of Newtonville, and a nephew, Royal Little of Providence, R. I. He was a member of the Class of '85 of M. I. T.

Dr. Little was widely known in his chosen profession and in the business world. He was president of A. C. S. (1912-14), A. I. Ch. E. (1919), and Society of Chemical Industry (London), (1928-9).

He began his professional work as chemist to the Richmond Paper Co.,

Rumford, R. I., the first mill in the U. S. to manufacture wood pulp by the sulfite process. In '86 he opened a laboratory in Boston in partnership with R. B. Griffin to engage in the general commercial practice of chemistry. Mr. Griffin, however, was killed by an accident in 1893, and for 7 years thereafter Dr. Little carried on the business alone, forming a new partnership with the late Dr. William H. Walker in 1900, which continued until 1909, when the business was incorporated. In '17 the laboratories were moved to their present location in Cambridge.

A "Chemical Pioneer"

The early years of the concern were largely pioneering in a new and undeveloped field. Industry was antagonistic, and "the technical man" was looked upon with suspicion. Through these critical years it was only Dr. Little's unfailing optimism and faith in his profession that kept the path open for his future success. During that period Dr. Little took out patents of processes for the manufacture of chrome tanned leather, chlorate of potash, and cellulose acetate, and later invented processes for smoke filters, newsprint from Southern woods, and others dealing with the recovery of naval stores from lumbering wastes. During the War he acted as consultant to the Chemical Warfare Service and the Signal Corps. He was in charge of special researches on airplane dopes, acetone production, smoke filters, etc., and was the inventor of the so-called "sucked-on" gas filter, which became part of the standard equipment of the U. S. Army. Among other contributions of his laboratory are several important processes connected with pulp and paper making, non-inflammable movie films, artificial silk, the production of alcohols, esters, and other compounds from waste gases of oil refineries, airplane dopes, automobile finishes, stereotype mats, phonograph records, and others in widely diversified fields.

Dr. Little was chairman of the Advisory Committee of National Exposition of Chemical Industries and had served as a

member of Division of Engineering and Industrial Research, National Research Council, as well as of the Advisory Board of Superpower Survey, U. S. Geological Survey.

He was President of the Alumni Association of M. I. T. in 1921-2 and was made a Life Member of the Corporation of that institution in 1923. His conception and initiation of the School of Chemical Engineering Practice at M. I. T., based on the "unit-operations" plan, is considered outstanding and has found general acceptance.

Dr. Little was a member of the consulting board of editors of CHEMICAL INDUSTRIES for years and his services in this connection, like everything else he did, were highly constructive.

In 1931 he was awarded the Perkin Medal as "the American chemist who has most distinguished himself for his services to applied chemistry."

Saw Future for Agricultural Wastes

In 1928 he stated that American agricultural wastes might eventually provide building material for our homes, part of the food we eat, cardboard containers to ship it in, paper to write upon, clothes to wear and starch to iron them with.

"The waste materials of agriculture," Dr. Little said, "furnish an almost inexhaustible supply of raw material from which chemical research will develop an increasing number of valuable products of widely diversified use." He then explained that interest concentrated on the profitable utilization of cornstalks and peanuts.

Once defining the "Fifth Estate" as "that small company upon whose creative effort the world depends for the advancement of science," Dr. Little said that the knowledge, vision and open mind possessed by members of the "Fifth Estate" ought to be brought to bear in the formulation of national policies and the solution of governmental problems.

Recipient of Many Honors

Dr. Little took a keen personal interest in every young chemist who came under his observation. He was untiring in his endeavors to place chemistry on a par with the other recognized professions and unceasingly urged upon the practitioners of chemistry the importance of upholding the high standards of the profession. In spite of his many honors, in his own opinion his chief contribution to the wel-

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fare of his fellow-men was in "preaching the gospel of industrial research."

In '18 the University of Pittsburgh conferred upon him the honorary degree of Doctor of Chemistry. In '29 the Honorary Associateship of the College of Technology, Manchester (England), was conferred upon him, and the University of Manchester made him honorary Doctor of Science. Corresponding degrees were conferred upon him by Tufts College in '30 and by Columbia in '31, the latter with the citation:

Arthur Dehon Little, Chemical Engineer—Native of Massachusetts; a captain in the organization and direction of research in the science of chemistry in all its manifold revelations; covering in his field of interest and influence almost every aspect of chemical engineering practice; fertile in invention, practical in application and a genuine leader in the preservation and advancement of that organized body of knowledge which we know as science; one who, as even Sir Humphrey Davy would admit, pursues science with true dignity.

Foreign Trade

U. S. Exports of Chemicals Increases 8% in First 6 Months of '35—Sulfur Shipments Decline—Germany Introduces New Export Plan—Philippine Chemical Requirements Analyzed—

U. S. exports of chemicals and allied products were well maintained during the 1st half of '35 with all major items except sulfur and certain coal tar products and fertilizer materials registering substantial increases compared with the corresponding period of the preceding year. Foreign sales of chemicals and allied products reached the value of \$63,118,000 during the 1st 6 months of the year, an increase of more than 8% compared with the 1st half of '34, while imports of chemicals and allied products in the 1st half of '35 were valued at \$57,527,000, preliminary statistics show.

Industrial chemicals led the chemical export list during the 1st half with foreign shipments valued at \$11,754,000 compared with \$10,411,000 for the same period last year, and shipments of industrial chemical specialties to foreign markets increased 6% to \$6,384,000.

Despite the weak export demand for turpentine, shipments of naval stores, gums and resins were valued at \$7,773,000 during the 1st half of '35 compared with \$7,110,550 for the corresponding period of the preceding year. Exports of paint products, which includes pigments, varnishes, etc., were valued at \$7,861,000, compared with \$6,222,000 for the 1st half of '34, an increase of 19%. The export

demand for ready mixed paints has been especially good since the beginning of the year. Foreign shipments during the 1st 6 months were valued at \$1,921,500, an increase of 22% over the same period of '34 when exports were valued at \$1,575,600.

Owing to the weakened export demand for benzol, pitch and crude coal tar, exports of coal tar products declined 13% to \$6,461,000 during the 1st half of the year. Exports of coal tar dyes, colors, and stains, however, which make up half of U. S. foreign sales of coal tar products, were valued at \$3,164,700 compared with \$2,905,600 for the 1st 6 months of '34.

COMING EVENTS

A. C. S., 90th Meeting, San Francisco, week of Aug. 19.

Central States Section, American Water Works Association, Fort Pitt Hotel, Pittsburgh, Aug. 22-23.

National Shoe Retailers Association, Official opening of American Leathers for Spring and Summer, 1936, and Joint Style Conference, Waldorf-Astoria Hotel, New York, N. Y., Sept. 9, 10.

National Machine Tool Builders Association Exposition, Exposition Hall and Public Auditorium, Cleveland, Ohio, Sept. 11-21.

Rocky Mountain Section, American Water Works Association, Annual meeting, Brown Palace Hotel, Denver, Colo., Sept. 16-18.

Technical Association of the Pulp & Paper Industry, fall meeting, Atlantic City, week of Sept. 16.

New England Water Works Association, Providence-Biltmore Hotel, Providence, Sept. 17-20.

National Industrial Advertisers Association Convention, William Penn Hotel, Pittsburgh, Pa., Sept. 18-20.

Atlantic Coast Premium Exposition, Hotel Pennsylvania, N. Y. City, Sept. 23-27.

Seventeenth National Metal Congress and Exposition, Chicago, Ill., week of Sept. 30.

New York State Sewage Works Association, Joint meeting with New England Sewage Works Association, Hotel Van Curler, Schenectady, N. Y., Oct. 4, 5.

American Public Health Association, 64th Annual Meeting, Hotel Schroeder, Milwaukee, Wis., Oct. 7-10.

Electrochemical Society, semi-annual meeting, Washington, D. C., Hotel Willard, Oct. 10-12.

24th National Safety Council, Louisville, Oct. 14-18.

American Gas Association, Palmer House, Chicago, Oct. 14-18.

American Society Municipal Engineers and International Association Public Works Officials, Netherland Plaza Hotel, Cincinnati, Ohio, Oct. 14-15.

South Section American Water Works Association, Houston, Texas, Oct. 14-17.

Laundryowners' National Association, Hotel Traymore, Atlantic City, Oct. 21-24.

Tanner's Council of America, fall meeting, Palmer House, Chicago, Ill., Oct. 24-25.

Second Annual Convention, National Paint, Varnish and Lacquer Association, Mayflower Hotel, Washington, Oct. 30-Nov. 1.

In connection with the convention the "Paint Show" will be held Oct. 27-29 at Washington.

13th Midwest Regional A. C. S. Meeting, Brown Hotel, Louisville, Oct. 31-Nov. 2.

American Petroleum Institute, Biltmore Hotel, Los Angeles, Nov. 11-14.

American Institute of Chemical Engineers, Columbus, Ohio, Nov. 13-15.

International Acetylene Association, Hotel Cleveland, Nov. 12-15.

Working Association for Combating & Preventing Corrosion, Berlin, Nov. 18-19.

Exposition of Chemical Industries, Grand Central Palace, N. Y. City, Dec. 2-7.

Sixth National Organic Chemistry Symposium, Rochester, N. Y., Dec. 30.

National Shoe Retailers Association, and National Boot and Shoe Manufacturer's Association, Joint Convention and Style Show, Chicago, Ill., Jan. 6-9, 1936.

American Ceramic Society, 1936 Annual Meeting, Columbus, Ohio, Mar. 29-Apr. 4.

Chemical Engineering Congress, Central Hall, Westminster, England, June 23-27, 1936.

Sulfur Exports Lower

Sulfur exports declined both in quantity and value during the 1st half of the year—quantity decreasing from 230,455 to 178,000 tons compared with the corresponding period of '34, and the value from \$4,284,500 to \$3,422,000. Sulfur exports during June, however, took a decided upward trend, increasing 40% in quantity to 54,000 tons and 48% in value to \$1,049,000, compared with June of last year.

Other chemical and allied products which registered increases during the 1st half of '35, included medicinals which increased 12% to \$5,810,000; toilet preparations, 15½% to \$2,825,250; essential oils, 18½% to \$1,200,700; crude drugs, chiefly ginseng, 62% to \$597,900; and industrial explosives, 30% to \$1,266,700, official statistics show.

Germany Seeks Trade

An increase in Germany's export trade is anticipated, particularly in the chemical field, as a result of a new plan which has been put into effect for subsidizing export business. Under the new plan funds will be raised for subsidizing exports by levying a tax, scaled from 1 to 4% of the turnover involved, upon all industrial production intended for domestic consumption. Levies apply exclusively to industrial output for domestic consumption. All other forms of trade, including agricultural products, distribution, insurance, finance, etc., as well as industrial output for export will be exempt.

It is understood that the levies are to be paid monthly against a yearly allotment, and it is intended to build up a fund of around one billion marks from which subsidies will be granted to exporters in sufficient amounts to enable them to lower export quotations to levels competitive with foreign countries.

The precise amount of subsidy granted will vary considerably according to the particular branch of the industry involved and even the circumstances of the individual export transaction will be considered. As the chemical industry in general has consistently proved itself most competitive among German industries in foreign markets, it is believed in Germany that only a slight degree of subsidization may be granted.

Considered An Emergency Measure

The German Government considers the plan an emergency measure vitally necessary for the country's economic salvation and the consummation of its nationalistic program. It hopes the plan will stimulate exports and create foreign exchange sufficient to cover imports of indispensable raw materials needed in its domestic industries.

Germany's chemical exports account for approximately 16% of the total of all commodities, according to C. C. Concan-

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Amino Azo Toluene Base
Amino G Salt
Amino H Acid
Amino J Acid
Amino Phenol Sulphonic Acid
(1:2:5)
Aniline Oil
Anthraquinone
Anthrarufin

Benzanthrone
Benzidine Base-Distilled
Benzoyl Benzoic Acid (Ortho)
Beta Amino Anthraquinone
Beta Naphthol
Beta Naphthylamine
Broenners Acid

Calcium Malate (Normal)
Cassella Acid
Chicago Acid (SS Acid)
Chlor Benzanthrone
Chlor Quinizarine
Chromotropic Acid
Cleves Acid (1:6-1:7 & Mixed)
Cumidine

Dianisidine
Diethyl Aniline
Dimethyl Aniline
Dinitrobenzene
Dinitrochlorobenzene
Dinitrotoluene (M. P. 68°—66°
55°—20°)
Dinitrotoluene Oily
Dinitrophenol
Dinitrostilbene Disulphonic Acid
Di-Ortho-Tolyl Thiourea

Diphenyl Methane
Ditolyl Methane
Epsilon Acid
Ethyl Benzyl Aniline
Ethyl Benzyl Aniline Sulphonic
Acid

Fumaric Acid
G-Salt
Gamma Acid
H-Acid
Hydroquinone

Isatin
J-Acid
Koch Acid

L-Acid
Laurents Acid
Malic Acid
Maleic (Toxic) Acid
Maleic (Toxic) Anhydride
Metanilic Acid
Meta Nitro Para Toluidine
Meta Phenylene Diamine & Sulpho
Acid
Meta Toluylen Diamine & Sulpho
Acid
Mixed Toluidine
Myrbane Oil

Neville-Winthers Acid
Nitro Amino Phenol (4:2:1)
Nitro Benzene
Nitroso Phenol (Para)

Ortho Anisidine
Ortho Chlor Benzaldehyde

Ortho Chlor Benzoic Acid
Ortho Chlor Toluene
Ortho Nitro Anisole
Ortho Nitro Toluene
Ortho Toluidine

Para Amino Phenol
Para Amino Acetanilide
Para Nitroaniline
Para Nitrotoluene
Para Nitroso Dimethylaniline
Para Toluidine
Peri Acid
Phenyl J-Acid
Phenyl Peri Acid
Phthalic Anhydride

Quinizarine
R-Salt

S-Acid
SS-Acid (Chicago Acid)
Schaeffer Salt
Schoellkopf Acid
Sodium Hydrosulfite
Sodium Metanilate
Sodium Naphthionate
Sodium Sulphanilate
Succinic Acid
Succinic Anhydride
Sulphanilic Acid

Tetra Chlor Phthalic Anhydride
Thiocarbanilide
Tolidine
Tolazine
Tolyl Peri Acid
Triphenylguanidine

Xylidine

We Invite Inquiries Concerning Your Needs For These and Other Coal Tar Products



NATIONAL ANILINE AND CHEMICAL COMPANY, INC.

Intermediates Division

40 RECTOR STREET

Bowling Green 9-2240

NEW YORK, N. Y.

BRANCHES AND DISTRIBUTORS THROUGHOUT THE WORLD

INTERMEDIATES

non, Chief of the Commerce Department's Chemical Division. Exports during the first quarter of '34 declined 9% in value to 160,421,000 reichmarks, compared with the corresponding period of last year, but the volume increased from 818,995 to 923,625 metric tons.

What the Philippines Buy

Except for matches and a limited quantity of pharmaceutical and toilet preparations the Philippine Islands depend entirely upon foreign countries for their domestic requirements of chemicals and allied products, more than half of which are obtained in the U. S., according to a report from Trade Commissioner C. E. Christopherson, Manila, made public by the Commerce Department's chemical division.

During '34 imports of such products into the Philippines were valued at \$6,100,000, an increase of 25% over the preceding year and 30% greater than in '32. Of the '34 total, the U. S. accounted for \$3,350,000 compared with \$2,550,000 during '33, while Japan's share advanced from \$150,000 to \$258,500. Increases in '34 were due largely to heavier purchases of fertilizers and medicinal and pharmaceutical preparations, according to the Trade Commissioner's report.

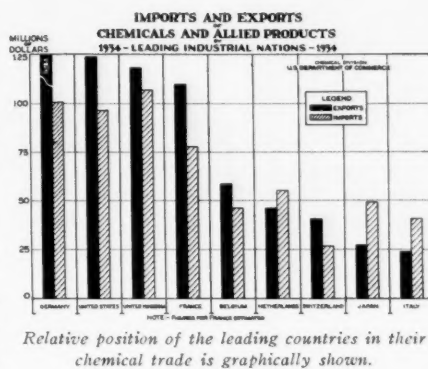
Foreign

Italian Chemical Industry Makes Important Advances in the Past Year—German Wintershall Reduces Dividend—Other Important Foreign News Items Summarized—

Italian chemical industry continued to make progress in '34, particularly in the domestic market, and all the larger companies declared the same dividends as in the preceding year, according to a survey of the chemical industries in Italy, Poland, Denmark, Greece, Turkey and British India, made public by the chemical division of the Commerce Department.

During '34 Montecatini, largest in Italy, constructed 2 large research laboratories which are on a scale hitherto unknown in Italy. These laboratories employ approximately 100 chemists and technical experts, and include research departments, semi-industrial testing laboratories, libraries, and conference rooms, which are equipped with the most modern instruments and apparatus available. All fields of modern chemistry are covered in these 2 laboratories.

Montecatini reports that important advances were made in '34 in the production of synthetic dyes and medicinals, methanol, formaldehyde, urea, synthetic resins, artificial cryolite, and synthetic camphor. Company also claims to be producing a satisfactory synthetic gasoline from domestic lignite and has developed an im-



portant new explosive derived from methanol and nitric acid. This company, it is stated, has solved the problem of producing a domestic cellulose suitable for nitration and the rayon industry. With regard to cellulose for paper manufacture, Italian chemists claim to have perfected a chlorination process for obtaining cellulose from annual plants, such as rice and wheat straw.

Permits were issued for the erection of 118 new chemical plants in Italy during '34, bringing the total number to 874 at the end of the year with an aggregate capitalization of 2,426,500,000 lire.

Italy's Foreign Trade

Italy's foreign trade in chemicals followed the same course as that taken by the country's total trade exchange. Imports increased considerably while exports continued to decline, reaching the lowest level registered in the past 6 years.

In spite of such difficulties as the necessity of import permits and sanitary registration fees during '34 American products continued to enjoy a small share of the Italian market for cosmetics and toilet preparations, medicinal specialties, and paints and varnishes, including nitrocellulose lacquers.

Foreign Developments Reported

Reduction of dividends by the German company, Wintershall, A. G., world's largest potash concern, which controls over 40% of the total German output, was revealed in a recent report. Company has announced a reduction to 4% for '34, which compares with 5% paid in '32 and '33, and 6% in '31.

Other reports from Germany state the outlook for American coal-tar pitch exports to that country are unfavorable owing to the existence of heavy stocks, and that Germany is shifting naval stores purchases away from the U. S. to European countries, particularly Russia. German exports of bronze powder are being stimulated by further price cuts.

Reports from other European countries show the following chemical developments: Construction of 5 new industrial alcohol plants in Ireland; a new synthetic resin plant has commenced operation in Erith, England; Russia has started production of carbon black in Baku; a

new corporation has been formed in Hungary for the production of lactic acid; France's efforts to reorganize and operate a compensation fund for the naval stores industry have not been successful.

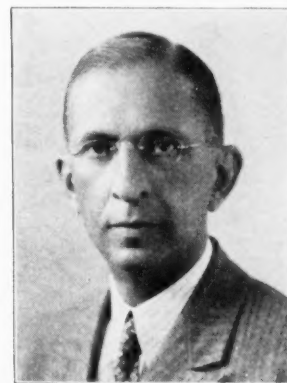
Reports from the Far East indicate that in India the largest domestic producer of sea salt has opened a new plant for the production of magnesium sulfate; that Japan has almost monopolized China's import trade in calcium chloride; and that a new company with a capital of 100,000 yen has been formed in Japan for the manufacture of photographic chemicals.

Argentina has substantially increased exports of animal by-products since the beginning of '35 and imports of sodium bichromate are increasing as a result of heavier arrivals from Russia. May exports of quebracho extract from Argentina showed further contraction. Imports of red lead into the Philippines have declined owing to the increased use of ready mixed paints, and that country is now producing, in one factory, more than two-thirds of the domestic demand for matches.

"The Gangplank"

Lammot du Pont Finds Recovery in England Farther Advanced than in the U. S.—Notable List of Chemical Executives Reported on the High Seas—

Puffing leisurely at his ever-present pipe Lammot du Pont told reporters that England is marching out of the depression ahead of the U. S., because in England there prevails a better cooperation



LAMMOT DU PONT

"The Wagner Bill is a catastrophe."

between industry, commerce, and the government. Mr. du Pont returned in the *Normandie* early last month after a month's stay. He was accompanied by Mrs. du Pont and his daughter and son-in-law, Mr. and Mrs. George P. Edmonds.

Later reviewed in his Wilmington office, Mr. du Pont elaborated for re-

porters on conditions abroad as he saw them after an absence of 8 years from the continent.

"You see evidence of recovery in England," Mr. du Pont said. "People are working. Banks are busy. Factories are being operated.

"In England you find a cooperation between commerce, industry, and the government closer than that found in the U. S.

"Every time the administration here puts up a new measure, what happens? Immediately, there is a 'kick' from all parts of the country."

"Also, in England there is a labor leadership that is more intelligent than you will find in this country," Mr. du Pont added. "England is a very much unionized country and they feel over there that that U. S. must follow England in her labor ideas."

At this point, the Wagner labor bill was mentioned.

"The Wagner bill is a catastrophe," Mr. du Pont said at once, but he smilingly declined to elaborate, according to Wilmington newspaper accounts.

William S. Gray, Sr., Abroad

Another prominent executive in the chemical field who is now in Europe is William S. Gray, Sr., of William S. Gray & Co. He was uncertain when sailing when he would return, but expected to be back within a month or 6 weeks at the latest.

Silver of Stokes Silks Markets

John A. Silver, vice-president, F. J. Stokes Machine Co., Philadelphia, manufacturers of pharmaceutical, chemical and special process equipment, is on an 8



JOHN A. SILVER

Equipment executive in Europe investigating foreign markets.

weeks' trip through England and the Continent where he will visit a number of plants in the various fields served by his company and study conditions with a view to enlarging Stokes' manufacturing and sales facilities abroad.

Others Outbound

Robert Faesy of Truempy, Faesy & Besthoff, well-known N. Y. City dealers,

sailed in the *Berengaria* with Mrs. Faesy last month for a 6 weeks' tour of the Continent.

Dr. George Oenslager, outstanding rubber technologist (Goodrich), is on a 10 weeks' trip of the Mediterranean. He is with a group of classical scholars on a pilgrimage to the country of the poet Homer. And chemists have been accused of being one-sided.

George Hasslacher is in Europe. He made the trip over in the *Conte di Savoia*.

Michigan's Harry Farleigh left in the *Washington* on July 31 and was "seen off" by a large delegation from the Michigan N. Y. City offices.

Others noted on the eastbound lists were August Zinsser and A. G. Rosengarten.

Carl Ulrich, vice-president of Kennecott Copper, returned recently in the *Normandie* after participating in the meeting of the Foreign Copper Producers' Cartel in London.

"Gus" Bayer, who celebrated his 40th year with Merck, is in Europe on an extended trip.

Mr. and Mrs. Pierre du Pont arrived back in the *Ile de France*. He sees the tax bill as a blow to the U. S. jobless.

Edward T. Bischoff, president, Ernst Bischoff Co., manufacturers of chemical supplies for textile mills, left recently for an extended trip through Germany and Switzerland. He will make a survey of new products for processing textiles, which he may introduce in this country in the fall.

D. A. Shirk, president, Rare Metal Products, Belleville, N. J., will return on Aug. 20, accompanied by Mrs. Shirk and their 2 daughters.

Agronomists Sail

More than 50 prominent agronomists from various sections of the U. S. enroute to the 3rd International Congress of Soil Science boarded the *Ile de France* July 20.

Included in the party which sailed was: Dr. J. G. Lipman, director, New Jersey Experiment Station, New Brunswick, N. J.

Acticarbene Head Returning

M. L. Blanc, president, Acticarbene Corp., is returning late in August. E. Luaces, expert on activated carbon and a consultant with Acticarbene, expects to leave for Cuba early in September on a combined business and pleasure trip.

Charles J. Brand, N.F.A. secretary, accompanied by Mrs. Brand, will sail Aug. 14 in the *Manhattan* for a motor trip through England, Scotland, Ireland, and Germany.

J. C. Launay, of International Selling, sailed on Aug. 10.

Associations

A. C. S.'s 90th Meeting at San Francisco Expected to Attract 1,000—Unusually Fine Program Arranged—Noyes and Fuoss To Be Honored—Safety Program Announced

Oil experts from all over the country will participate in the 90th meeting of the A. C. S. in San Francisco, Aug. 19 to 23. Sixteen papers dealing with petroleum research will be presented before the Division of Petroleum Chemistry, of which F. W. Hall of N. Y. City is chairman.

L. C. Snider and Benjamin T. Brooks of N. Y. City will discuss "The Coming Shortage of Petroleum in the United States and Some of Its Probable Effects" at a meeting of the Division on Wednesday, Aug. 21. Other speakers at this session are:

Sidney Charles Singer, Jr., Roy Russell Wilson, and George Granger Brown, all of the University of Michigan; A. C. Bratton, Jr., W. A. Felsing, and J. R. Bailey, University of Texas; J. C. Morrell, C. G. Dryer, W. L. Benedict, K. M. Watson, Jerome L. Wien, George B. Murphy, C. D. Lowry, Jr., and Gustav Egloff, Universal Oil Products, Chicago; Ulric B. Bray, Union Oil of California, and W. H. Bahlke, Standard Oil of Indiana.

A symposium on the utilization of natural gas hydrocarbons will be held Tuesday, August 20, jointly with the Society's Divisions of Gas and Fuel Chemistry and Industrial and Engineering Chemistry.

Interesting Program

Each division has arranged a program with outstanding papers. While the record of attendance at the N. Y. City meeting in April is in no danger of being broken at the San Francisco gathering the committee in charge is planning on at least 1,000 registering at the Saint Francis during the 4-day period.

Two chemists, separated in age by nearly a half-century, will be honored for noteworthy contributions to science by the Nation's leading chemists.

To Prof. William A. Noyes, 78, emeritus director of the chemical laboratories at the University of Illinois, will go the Priestley medal, highest award for chemical research.

Sharing honors with Prof. Noyes will be Dr. Raymond M. Fuoss, 29, assistant professor of chemistry at Brown University, who is to receive the society award in pure chemistry, valued at \$1000. Dr. Fuoss was selected for "the most conspicuous research" by a chemist under 31 years during the past year.

Arrangements for the meeting are being made by a committee headed by Prof. Arthur Lachman of the University of California.

Theme—Safety in Chemical Plants

24th Annual Safety Congress of the National Safety Council will be held in Louisville, Ky., Oct. 14-18. The following papers will be presented: "The welding of chromium steels in chemical plant equipment," by J. R. Dawson, Union Carbide Research laboratories; "Welding and cutting in tanks and other small unventilated places," by H. F. Reinhard, Carbide and Carbon; "How can unsafe practices and unsafe conditions be uncovered and remedied?" by H. L. Miner, Safety & Fire Protection Div., du Pont; and "Safe practices in entering tanks," a discussion led by A. L. Armstrong, Eastman Kodak.

The National Safety Council reports as new members: J. H. Baxter & Co., San Francisco; Cleveland-Cliffs Iron, Marquette; Ethyl-Dow Chemical, Wilmington, N. C.

Meetings at Metal Exhibit

Auditorium at the Metal Products Exhibit, International Bldg., Rockefeller Center, N. Y., to be opened in September, will be utilized during the coming year for meetings by a number of technical or commercial societies interested in industrial materials.

National Management Council has requested reservations for 8 meetings. This organization consists of the following societies interested in various phases of industrial management: American Management Association; American Marketing Society; American Society of Mechanical Engineers; Association of Consulting Management Engineers; International City Managers Association; Life Office Management Association; National Association of Cost Accountants; National Office Management Association; Personnel Research Federation; Society of Industrial Engineers; and the Taylor Society. The American Institute of the City of New York is planning to hold 3 meetings here.

Requests for reservations by several other associations are also being considered by Metal Products Exhibit, Inc., which is offering its facilities for the holding of meetings free of charge to organizations of appropriate character.

Salesmen Golf Results

"Vic" Williams, Monsanto, shooting invincible golf, was the winner in the Class A flight at the 2nd in the series of Salesmen's Association golf tournaments held at the Lakeville Country Club on Long Island on July 16. Other winners were: H. Hermann, of General Dyestuff, who was second and Ed. Orem, of duPont, third. In the class B flight, A. M. Hopper, of Mallinckrodt, was first; second, Robert Wilson, of Dow Chemical, and J. C. McKenna, of Diamond

Alkali, was third. Hugh Craig, of the *Oil, Paint and Drug Reporter*, won the prize for the least number of putts. Edward Burke, Jr., of American Pharmaceutical, won the kickers handicap award for guests. Frank Ward, L. Douglass and J. Alvarez, of Grasselli, were the winners in the open kicker's handicap. The third tournament is scheduled for Wingfoot on Aug. 13. Latest members elected to the Association are: J. T. Brady of Wilson Laboratories; J. W. Dobson of George Chemical; Elmer H. Hessler of G. S. Stoddard & Co.; James J. De Vere, Philippine American Drug.

The 3rd in the golf tournaments will take place on Aug. 13 at Wingfoot, in Westchester, and the final "big" party of the golf season on Sept. 17 at Pomonok, Flushing, L. I.

Expositions

Recognition of the value of display by American business is indicated by the enthusiastic planning now under way for the 15th Exposition of Chemical Industries. The industrial promotion value of expositions as a supplement to trade journal and newspaper advertising is becoming more and more appreciated both by exhibitors and their public. One evidence of this is the number of companies responding to the opportunity to exhibit their products and equipment at the 15th Exposition of Chemical Industries to be held in N. Y. City, at the Grand Central Palace, Dec. 2-7.

Machinery On View

Largest exposition of machinery ever held in the U. S. opens Sept. 11 in Cleveland under the sponsorship of the National Machine Tool Builders' Association. Show will continue for 10 days.

Companies

¶ George Truxal Forms Cleveland Distributing Company—Carbide Appoints Alcohol Distributors—Other Notes—

The newly formed Cliffs Dow Chemical appoints George W. Truxal & Co., 608 Keith Bldg., Cleveland, distributor for northern and central Ohio. Mr. Truxal, former chemical dept. sales manager for Cleveland-Cliffs Iron, is in charge of all sales, and warehouse stocks of chemicals will be carried in Cleveland.

Rolls and Ackerman Will Distribute

Rolls Chemical, Ellicott Square Bldg., Buffalo, is now a distributor for N. Y. State and Northern Pennsylvania for Carbide & Carbon Chemicals, for the sale and distribution of its new line of industrial and anti-freeze alcohols, also "Winter-Flo," a new, concentrated automotive anti-freeze.

Last month J. C. Ackerman, well-known Pittsburgh dealer in chemicals

with offices in the Gulf Bldg., was appointed distributor for Western Pennsylvania by Carbide & Carbon Chemicals on its industrial and anti-freeze alcohols.

Emery Buys Duratone

Emery Industries, Cincinnati, purchases Duratone, Inc., of the same city, a long established producer of laundry soap. E. C. Price, Duratone president, will remain as manager of the new Duratone division of Emery.

Company Briefs

Dow Chemical's Dowmetal sales abroad for first 6 months are heavy. Domestic sales are 40% above '34.

Eaton-Clark, old established Detroit dealer, is celebrating 97th anniversary.

Sherwin-Williams establishes fellowship at Indiana.

S. Schwabacher & Co., N. Y. City, importer of white mineral oils, reports completion of new tanker *Oelschindler* for Oelwerke Julius Schindler, Hamburg. Tanker is chartered for 2 palm kernel oil trips from Nigeria to Europe and/or U. S., first cargo to be discharged in Chicago.

Merck will absorb 5% manufacturer's excise tax to wholesalers on sodium perborate.

Swann (now Monsanto subsidiary), secures option on land rich in high percentage phosphoric acid phosphate rock.

A Detroit sales office is established by Hydraulic Press Manufacturing of Mount Gilead, Ohio, in the Curtis Bldg., 2842 W. Grand Boulevard, builders of H-P-M Hydro-Power Fastraverse Presses for production service.

The Photo Crafts Laboratory of H. O. Bodine & Associates, photographic chemical specialties, Wantagh, L. I., N. Y., moves into a larger laboratory and is extending its line of products materially.

Standard Ultramarine's eastern representatives meet in Huntington, W. Va., to discuss sales and distribution expansion. Midcontinent Chemical claims distinction of first using acid treatment for oil wells in Kansas.

Industrial Chemical Sales is now producing abietic acid.

Du Pont stages exposition at Marshall Field & Co., Chicago. Exhibit shows production and uses of du Pont products.

Moves

¶ Acticarbhone Takes Larger Space—Esselen in New Quarters—American Aniline Opens Enlarged Charlotte Offices—

Acticarbhone Corp., 27 Broadway, N. Y. City, producers of activated carbon and the equipment used with it, are moving into larger quarters in the same building. New space taken is on the 8th floor.

For Work In Physical Chemistry

Gustavus J. Esselen, Inc., research organization, moves to new offices and laboratories, 857 Boylston st., Boston. Larger quarters include new laboratory for specialized physical work where application of electronics to industrial problems will be investigated.

For Southern Service

American Aniline opens enlarged Charlotte office at 219 S. Mint st. Offices will include storage warehouse and laboratory.

Federal Mining and Manufacturing leases Stratford Oakum property, Jersey City.

Other Changes

Lanco, Lynn, Mass., chemical shoe supplies manufacturer, moves to Eagleton Bldg., Boston st.

C-T-C Corp., leases offices in Graybar Bldg., N. Y. City.

Beyer Laboratories will occupy entire building, 48th ave., and 35th st., Long Island City, N. Y.

Roxalin Flexible Lacquer, Elizabeth, N. J., establishes Detroit office at 1616 Kresge Bldg. (Roy St. John is sales representative).

Plants

¶ W. S. Carpenter, Jr., du Pont, Discusses Dyes before Plant Foremen—Standard Silicate Resumes Operations at Ottawa—Southern Alkali Adopts Housing Plan—Other Notes—

Walter S. Carpenter, Jr., du Pont vice-president, discusses establishment, growth and future of the du Pont Dye Works before a gathering of plant foremen. After relating du Pont's part in American dye history, Mr. Carpenter concludes, "It seems to me to be very reasonable to state that the future of the organic chemicals industry is as full of possibilities for new developments, new explorations, new expansion and enlarged services to mankind as is the case with any industry in the country today."

Checked At the Gate

Standard Silicate (silicate of soda) will soon resume operations at Ottawa, Ill., plant.

Mead Chemical Works is denied permission by Peabody Dept. of Public Safety to store inflammable liquids.

Landslide of soda ash in Solvay's Baton Rouge plant causes suffocation of Granderson Hughes, 28 year-old negro.

Lammot du Pont, du Pont president, plays host to 3000 employees on annual Delaware River night boat ride.

Southern Alkali, cooperating with Federal Housing Administration, plans construction of 85 homes for employees.

Carbide & Carbon moves into first place

tie with du Pont in Kanawha Valley twilight baseball league after a 1-0 victory over du Pont's team from the Belle plant.

Dow watchmen now sport snappy new uniforms.

Strike at Delta Chemical and Iron, Escanaba, Mich., ends amicably.

Construction

¶ Revival of Plant Construction Reported by Austin Co. Vice-President—Dow Will Build New Laboratory—Several Plans Announced Last Month—

George A. Bryant, vice-president, Austin Co., internationally known construction engineers, and designers of several of the larger chemical plants in this country, reports 100% increase in industrial construction for first 6 months of '35 over '34. Summarizing present conditions, Vice-President Bryant states:

"Work now under way represents the rush to fulfill industrial needs which cannot be put off any longer without serious consequences, either by weakening of competitive position or through continuation of loss producing inefficiencies."

Prominent in the month's construction news is Dow Chemical with a physics laboratory. Plans call for one large building housing entire physics department with 3 smaller connecting buildings.

General Aniline will add a 4 story building to the Rensselaer plant.

American Aniline is completing new office, storage warehouse, and dyestuffs laboratory at Charlotte, N. C.

Solvay will extend Hopewell plant.

Washington State college, Pullman, is taking bids on equipment for new chemistry building.

New dyeing and finishing plant is under construction at Beacon, N. Y.

Mallinckrodt purchases unused factory near present plant for warehouse purposes.

Krebs Pigment & Color starts new construction, remodeling, and adding of new machinery at Curtis Bay, Baltimore, plant.

Baugh & Son, fertilizer manufacturer, is building an addition to Oneida, N. Y., plant.

Solfo Paint & Chemical, Trenton, starts on 4th addition in 18 months.

Viscose will add several buildings to its acetate yarn plant in Meadville.

U. S. Smelting, Refining & Mining Co. is enlarging its Midvale, Utah, flotation plant.

Penn Charcoal & Chemical will open its rebuilt East Smethport, N. Y., factory soon.

American Petro-Chemical, Detroit, will build a motor fuel, chemical, and fixed gas plant near Wayne, Mich.

New Kromocolor Laboratory, Paramus, N. J., will open Sept. 1.

J. A. Tumbler Laboratories, Baltimore, chemical specialties, plans factory improvements.

Du Pont, concluding land negotiations, will begin work on paint and varnish plant, San Francisco.

Fires

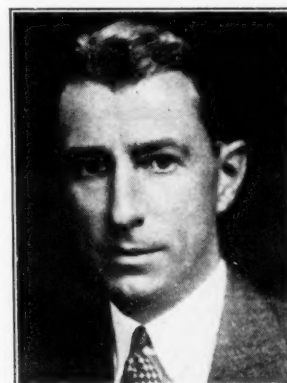
Fires in chemical plants reported during July: Perfect Cleaning Fluid, 1168 Edgewater ave., Ridgefield, N. J., 4th., \$500 damage; George F. Siddall & Co., textile soaps, Camp Wadsworth, S. C., 5th., \$5,000 damage; Kentucky Color & Chemical, Louisville, 5th., \$3,000 damage; Reynolds Metals, Louisville, 17th., by explosion; Atmospheric Nitrogen, Hopewell, 17th., by explosion; Hydro-Carbon Mfg. Corp., Piscatawaytown, N. J., 18th.; Phillips & Jacobs, 622 Race st., Philadelphia, 23rd.; C. Berthel Chemical, 142 Lincoln ave., N. Y. City, 26th.

Hayward-Thompson Chemical, Dallas, 23rd., \$100,000 damage.

Obituaries

¶ Mallinckrodt Suffers Great Loss in Death of Harold W. Simpkins—Other Deaths Reported in July

Harold Winslow Simpkins, 50, Mallinckrodt treasurer and sales manager since '25, on July 11. Born in St. Louis, educated at Smith Academy, Paul School,



HAROLD WINSLOW SIMPKINS

and later at Harvard, he was first associated with Hydraulic Press Brick. He has been with Mallinckrodt since '17. Mr. Simpkins was a member of the Noonday Club and the St. Louis Country Club. He is survived by his wife and 3 children.

Other deaths last month: J. J. Kellogg, 66, foreman at Solvay for 35 years, of heart attack, July 22.

C. O. Moser, 50, president, Institute of American Fats and Oils, of acute indigestion, July 11.

Hugo Schlatter, 52, chemist and consulting engineer, Director Federal Work Relief, Stamford, Conn., July 22.

J. W. Block, 68, founder, Blockson Chemical, Joliet, following operation, July 8. Born in Russia he migrated to this country and started Superior Chemical.

William S. Helm, 66, president, Louisville Paint Mfg., following operation, July 12.

Walter A. Dorn, 46, Grasselli safety division director and service dept. manager. He was with Grasselli for 25 years.

Mrs. Dora Sedgwick Hazard, widow of Frederick R. Hazard, former Solvay Process president. Mrs. Hazard was regarded as Syracuse's outstanding philanthropist.

John T. Brooks, 86, founder and former president of the Baltimore Chemical Co., on July 2.

Joseph H. Gerathy, 58, sales executive with S. B. Penick & Co., on July 20.

Dr. Lewis M. Drake, 67, prominent Southern research chemist, on July 16.

Washington

¶ Natural Salt Cake Producers Seek \$5.50 Duty—Processing Tax on Flaxseed Defeated in Senate—Patent Pools To Be Investigated—Other Bills of Interest Introduced Last Month—

Congressmen from 6 states are insisting that the pending tax bill be amended to provide an excise duty of \$5.50 per ton on imports of sodium sulfate, at present on the free list.

Holding that the subsidized German product threatens the very existence of the American salt cake industry, the following Representatives attached their names to the move:

Representatives Isabella Greenway (Ariz.), William Lemke (N. D.), Numa F. Montet (La.), Abe Murdock (Utah), James G. Scrugham (Nev.), and R. Ewing Thomason (Tex.)

"Although the U. S. can easily supply the entire demand for sodium sulfate," Representative Greenway declared, "American producers are now filling about half of that demand and these companies will be out of business in the near future unless relief is afforded."

Representative Lemke in pledging his support to the proposed excise tax on natural salt cake declared:

"I intend to do what I can to preserve the American market against the products of cheap foreign labor."

Senate Votes Down Flaxseed Tax

Senate last month, by a vote of 49 to 33, struck out the provision for a 35c per bushel processing tax on flaxseed from the AAA amendment bill. The so-called

Ayres-Buckler Bill (H. R. 6977), to amend the Agricultural Adjustment Act with respect to flaxseed, has been tabled for the present session. It seems, therefore, increasingly plain that no processing tax on flaxseed will be voted during this session of Congress.

Would Tax Perilla and Hempseed

Amendment to the Agricultural Adjustment Act introduced July 10 by Senator Shipstead provided for a processing tax on perilla and hempseed oils and reads as follows: "In the case of flaxseed the first marketing year shall be considered to be the period commencing Oct. 1, 1935, and ending Apr. 30, 1936. Subsequent marketing years shall commence on May 1 and end on April 30 of the succeeding year.

"There shall be levied, assessed, collected, and paid (during any period after the date of the adoption of this amendment when a processing tax is in effect with respect to flaxseed) (a) a processing tax on the first domestic processing of perilla seed at the rate equal to the per pound rate of the processing tax which is then in effect on flaxseed, and (b) a processing tax on the first domestic processing of hempseed at the rate of 84% of the per pound rate of the processing tax which is then in effect on flaxseed."

Naval Stores Statistics

Wider in scope than when first written by amendments added by the house committee on agriculture, the bill to provide for publication of statistics on turpentine and rosin (S. 1811) has been reported to the house with the recommendation that it pass. Senator George (Ga.) sponsored the measure through the upper house.

Additional Congressional Proposals

House authorizes its committee on patents to conduct an investigation during the recess of Congress into patent pools and mutual patent agreements and authorizes \$25,000 for expenses. Rep. William I. Serovich (N. Y.), chairman of the patent committee, was most active in getting through the authorization. Rep. Sam. D. McReynolds (Tenn.) is offering a bill to license imports and exports of articles to be classed as munitions of war and to prevent the export of substances exclusively intended for chemical warfare.

Manganese Producers Lose

The U. S. manganese industry is affected by Secretary of State Hull's trade pact consummated last month with Soviet Russia, whereby this country reduces the tariff on manganese imports from that country 50%, in return for Russia's agreement to purchase about \$30,000,000 worth of American products during the year.

Trade Commission

¶ F.T.C. Cites Several Companies for Alleged Violations—Lake Erie Chemical Denies Commission's Charges—

Federal Trade Commission files complaint against Vincent Maggiore, Canton, O., trading as Amo-Lime, for alleged imitation of the carton of "Climalene," a cleanser and water softener.

Commission enters consent cease and desist order against Rubber Manufacturers Association, and certain individuals, N. Y. City, prohibiting alleged price fixing in sale of mechanical rubber goods.

F. T. C. alleges misrepresentation on labels in consent cease and desist order against Baker Paint & Varnish, Jersey City. Use of words "zinc and lead" or "zinc lead" should be used only for prescribed quantities lead carbonate, sulfate and zinc oxide, rules the F. T. C.

Lake Erie Chemical, Cleveland, denies allegation of F.T.C., charging unfair trade practices tending to bring American trade into disrepute with foreign buyers.

Personnel

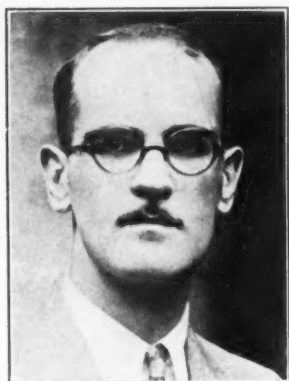
¶ Sealkote, New Producer of Novel Coatings, Announces Personnel—Partridge Heads Research for Hall Laboratories—Pickard, du Pont, Retires—Moffat Now a U. S. I. C. Vice-President—

Sealkote Corp., 40 S. Clinton st., Chicago, elects C. Roy Gleason, president, and R. W. Kenyon, secretary and treasurer. Sealkote, under the direction of Mr. Gleason, has developed a line of solutions for coating, impregnating and laminating paper and cardboards that represents several pronounced advantages to the paper trade and labelling and packaging industry. This line of solutions will be put on the market early in the Fall under the name of Sealkote.

Company maintains a modern, completely equipped laboratory for research, control and service. The exclusive selling and licensing representative will be Engineering & Licensing Corp., N. Y. City and Chicago. Corporation has recently added to its staff Dr. F. Lauter and Mr. C. H. Humphries. Dr. Lauter for many years has been well known for his work in the lacquer, resin, and plastic industries. He has made notable developments in many synthetic resins, such as phenol formaldehydes, urea formaldehyde compounds and many others. Mr. Humphries is a very well known research chemist who can count among his accomplishments Westinghouse Lamps, Stellite, original chromium plating, Udy-lite cadmium plating, colored aluminum, and cellulose film developments.

Partridge Goes to Hall Labs.

Dr. Everett P. Partridge will be director of research, Hall Laboratories.



DR. EVERETT P. PARTRIDGE
An outstanding authority on boiler water problems.

Formerly associated with U. S. Bureau of Mines and A. S. M. E., he is distinguished for researches on boiler water problems.

After 35 Years of Service

Prominent in personnel news is the retirement of F. W. Pickard, a director and vice-president of du Pont, after 35 years association with that organization. He retires also as foreign relations chairman but will remain as a consultant. Mr. Pickard has played an important part in du Pont development.

Wright Now A Consultant

John H. Wright, former Zonite vice-president and technical director, will engage in chemical and bacteriological development with offices in the Chrysler Bldg., N. Y. City.

Kenney Joins Herstein

Karl M. Herstein and Frederick Kenney form Kenney-Herstein, Inc., consulting chemists, 18 E. 41st st., N. Y. City. Mr. Kenney has been connected with the City of New York as chief chemist for 15 years.

Now a U. S. I. C. Vice-President

Fraser M. Moffat, Jr. is vice-president of U. S. Industrial Chemical. Formerly with National Aniline, and at one time having had his own company, he has been with U. S. I. since June '34.

Others In Different Assignments

G. A. Olson is on the eastern sales staff of Beck, Koller & Co., Detroit.

James T. Sutliff is transferred from Connersville factory to Roots-Connersville Blower's Chicago office.

George J. Laemmle will direct Grasselli's leather technical section in Cleveland experimental laboratory. New department will develop new leather products, furnish technical service to the trade.

Kenneth L. Carr, formerly with R & H Chemical, joins Warner Chemical peroxide sales and service department.

Eric N. Blackstead serves as Ansbacher-Siegle New England technical adviser after having charge of laboratory sales in Staten Island-New York offices.

George M. Barley, former Atlantic & Gulf Fertilizer secretary-treasurer, will represent American Potash & Chemical in Florida.

William H. Baumgartner, formerly with water and sewage research department at N. J. Agricultural Experimental Station, is in Krebs Pigment's Newark office.

F. H. Rosencrants is vice-president of Combustion Engineering, in charge of proposition engineering dept.

Dr. C. R. Payne joins Atlas Mineral Products technical and sales staff. Formerly with Mellon Institute, he has been developing plastic sulfur compounds.

Dr. John A. Schaeffer, former Eagle Pitcher Lead vice-president, is new Franklin and Marshall college president.

Alan Schade, formerly of Wilbur-White Chemical, is with Innis-Speiden at the Jersey City plant.

McCloskey Varnish, Philadelphia, J. C. Olsen, director of operations, reports appointment of Walter A. Wachholtz as chief research chemist. He has just finished 2 years of study abroad.

E. N. Blomberg succeeds E. A. Troxell as Publicker Commercial Alcohol western sales manager.

Litigation

¶ Catalin Declared Winner in Important Cast Phenolic Resin Patent Suit—Stanco Sustained—

Following closely on the heels of the important decision on the Kienle resin patent in which Paramet was sustained against G. E., comes the decision on the Catalin vs. Catalazuli suit involving a certain patent on the production of cast phenolics. In the suit Catalin charged the defendant with infringement and on July 20, Federal Judge Galston in the U. S. District Court for the Eastern District of N. Y. broadly held all patent claims valid and infringed upon by the defendant. Patent involved in this suit was U. S. Patent No. 1,854,600.

Catalin manufactures cast phenolic resins well known under their trade names Catalin and Prystal.

Outside of the above mentioned patent, Catalin owns and controls a considerable number of additional patents covering the manufacturing process of its products.

"Flit" Can Plagiarized

The U. S. District Court of the Southern District of N. Y. sustains Stanco in action against Sun Klean Chemical, Jack Buxbaum and Julius Steinhart, alleging plagiarism of the patented Flit Spray can.

Personal

¶ Merck Discusses Patents—Nelson Criticizes Proposed Corporation Tax Plan—

George W. Merck, Merck president, demands wider protection of medical discoveries by practitioners or university researchers. His paper, "The Chemical Industry and Medicine," published by A.C.S., arouses wide discussion on proper use of patents for public benefit.

Not Fair

Oscar Nelson, United Carbon president, in a letter to stockholders, criticizes proposed graduated taxation system on corporate income, stating that small stockholders in large corporations will bear relatively greater tax burdens than large stockholders in small corporations.

"The Passing Throng"

C. Wilbur Miller, former Davidson Chemical president, is Maryland Milk Control Board chairman.

King of Norway knights Charles L. Huisking for interest in American-Norwegian trade relations.

Miss Alice Read, Savannah, is the bride of Richard W. Heard, Columbia Naval Stores.

Frank J. D'Antonio, Charles Pfizer & Co., is father of twin boys.

Mellon National Bank, Pittsburgh, elects H. S. Wherrett, Pittsburgh Plate Glass, as a director.

Miss Mary Ellen Reid, Chevy Chase, Md., is the bride of Reuel W. Elton, National Paint, Varnish & Lacquer Association secretary.

Allan F. Kitchel, Binney & Smith, is on vacation in Glacier National Park.

Wilfred S. McKeon, Sulphur Products president, is new Greensburg, Pa., advertising club president.

Adolf Baumann, B. & B. Chemical president, is recuperating after his five day disappearance from home.

A. C. S. elects Walter A. Schmidt, Western Precipitation president, as director, to succeed Prof. Edward Bartow, A. C. S. president-elect.

Bill Killingbeck, 18-year-old Dow employee and former caddy, wins Central Michigan Amateur Golf Tournament.

A. K. Burke, du Pont director of manufacture, Flint, is on the Michigan Manufacturer's Association board of directors.

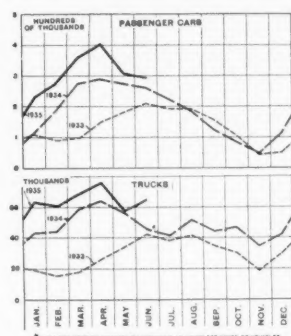
Want to Sell "Uncle Sam"?

An unofficial list of Government purchasing agencies may be obtained through the Machinery Div., Bur. of Foreign & Domestic Commerce, Dept. of Commerce, Washington.

Heavy Chemicals

July Shipments Are in Better Volume than Anticipated—Prices Are Generally Firm with Few Changes Reported—

After an extremely dull period in the 1st 2 weeks of the month the chemical industry was called on for much heavier shipments when industry generally suddenly awoke from the summer lethargy several weeks in advance of the expected fall upturn. The steel, textile, leather, glass and paper fields are all much busier than anticipated for this period of the year, while the decline in production in the automotive and rubber centers has been much less than was expected 60 days ago. In addition, items, such as chlorine and anhydrous ammonia, which enjoy larger tonnages in the summer months, are moving out in very satisfactory quantities. Production of paint, while declining from the normal high period, is reported to be still in much greater volume than in the corresponding period of '34. July total shipments, while under the June figures, were much better than those reported in July a year ago.



Trend of automotive production is seasonally down but totals remain ahead of late years.

Despite this unseasonal improvement however, buyers are making commitments at this time of the year cautiously and much of the spot business prevailing is for small quantities.

Changes In Tin Salts

Price changes were very few in the past 30-day period and reflect the firmness which has characterized the market for several months. The tin salts were slightly higher due to the stronger position of the metal.

World tin production in the 1st 5 months of '35 totaled 45,089 tons, an increase of 3,032 tons, or 7%, over the production for the corresponding period of '34, states the July Bulletin of the International Tin Research and Development Council issued by The Hague statistical office.

Apparent world consumption of tin shows a 15% increase this year, the figures for January to May being 56,243 tons in '35, against 48,931 tons in '34.

Important Price Changes

ADVANCED

	July 31	June 29
Cobalt oxide, black	\$1.39	\$1.25
Sulfate .....	.46	.40
Sodium stannate .....	.35	.34
Tin tetrachloride .....	.26½	.26¼

DECLINED

Antimony needle	\$0.10½	\$0.11
Glycerine, saponification ..	.10¼	.10½
Soap lye .....	.09¼	.09½
Manganese sulfate .....	.07	.09

DEPT. OF LABOR STATISTICS

	May '35	Apr. '35	May '34
Employment a	107.1	106.9	111.2
Payrolls a	97.8	96.2	94.4
Prices b	87.5	87.2	78.6

DATA FOR PROCESS INDUSTRIES

	May '35	Apr. '35	May '34
Paper and Pulp:			
Employment a	109.9	109.8	107.2
Payrolls	86.9	87.3	79.8
Rubber Products:			
Employment a	81.2	82.5	89.1
Payrolls a	66.8	71.2	70.3
Explosives:			
Employment a	87.3	84.6	98.3
Payrolls a	74.4	69.3	75.2
Soap:			
Employment a	98.2	102.7	102.3
Payrolls a	93.8	97.0	87.1

a 1923-'25 = 100.0; b 1926 = 100.0; x May '35 indexes preliminary, subject to revision; z Revised.

Tin control committee meets Aug. 9 at which meeting an increase of 10% in production was expected to be authorized.

Insecticide Sales Decline

Shipments of insecticide and fungicide materials began in the last week of the month to show signs of diminishing, and leading producers report tonnages about equal to last year. While the price structure has been fairly steady, manufacturers are somewhat disappointed in tonnages moved.

Paper Trade Reports

Paper business is reported to be in better volume than at the same period a year ago. Paper board market is quite dull. Chemical pulp market is steady, with kraft pulp very firm.

Situation In Glass

The American Glass Review says, in part, in its latest summary of market conditions: "Seasonal influences are uppermost in the major divisions of the glass manufacturing industries . . . General volume for the trade as a whole has not dropped below the level for the similar period of last year and there are certain encouraging indications that the usual stimulation that comes with the preparations for fall business may appear earlier this year than customary."

Rubber Consumption Declines

Consumption of rubber declined for a 3rd consecutive month, on the basis of a trade estimate of 32,000 tons made for July. However, the trade estimate is quite close to the consumption in July '34,

and the decline which has occurred is largely seasonal in nature.

Crude rubber consumption was slightly larger for the entire 1st half of this year than in the 1st half of '34 and substantially exceeded that in the first half of any other year except 1929.

Lower Sulfate Price?

There is some talk of possible lower prices for copper sulfate at the close of the busy season. No revision was made when copper went from the 9c figure to 8c. No official confirmation of such possible action was forthcoming from the leading producers. An accord on copper production was reached July 16 at a meeting of international producers when it was agreed to continue for an indefinite period the restriction of 30% on world output.

Lime Production Seasonally Lower

Acetate of lime production is declining but this is simply the usual seasonal curtailment. There is a good export demand for crude glycerine and, despite a ¼c decline announced in one or 2 quarters on both saponification and soap-lye, stocks are scarce.

Natural Gas Control

Complying with new law, effective Aug. 1st, the Texas R.R. Commission fixes allowable for West Panhandle natural gas fields at 482,143,000 cu. ft. daily for Aug., 88,407,000 for East Panhandle field, and 250,842,000 for remaining Texas fields.

Italian Sulfur Guarantee

The trade commissioner at Rome notifies the Dept. of Commerce of the extension of the government guarantee of stated minimum prices to sulfur producers through the fiscal years 1935-36 and 1936-37, and of establishment of production quotas. At present, the Italian sulfur industry operates at a small margin of profit, the government making up the difference between the world market sulfur price and certain previously established minimum prices, in lire.

Freeport Texas Reports

Earnings of Freeport Texas for 6 months ended June 30 are estimated at 64c a share on 796,380 shares of common. This compares with \$612,521 or 72c for the 6 months ending Dec. 31, '34, and \$864,569 or \$1.04 a share earned in the first half of '34.

Operating difficulties at Grande Ecaille, which were responsible for the falling off in earnings have now apparently been practically solved. Production at the deposit is reported back to normal, running around 1,300 tons daily, the same as the former peak. It was down as low as 200 tons daily.

Troubles at this deposit, of course, added substantially to operating costs, re-

sulting in a high cost inventory which, when sold over the past 12 months, cut down profits. From now on the company will work out of high cost sulfur into low cost sulfur. Improvement in operations was reflected only slightly in first half income, June being the first really good month.

Freeport's oldest deposit, the wholly-owned Bryan mound, which is nearing exhaustion, has taken a new lease on life and as a result of improved operating technique is now producing about 400 tons daily. Hoskins Mound is running normally.

Traffic

I. C. C. Refuses Permission to Meet Truck Competition — No Hope for Lower Phosphate Rock Rate—

Application of railroads in official territory for permission to establish rates on merchandise in shipping containers and in mixed carloads and other rates to meet truck or water competition without observing the aggregate of intermediate provision of Section 4 of the I. C. Act was denied by the I. C. C. on July 19.

In a 5 to 3 decision commission held that the situation growing out of truck or water competition does not constitute a special case justifying relief from the aggregate of intermediate provisions. Commissioner Mahaffie entered a dissenting opinion in which Commissioners Meyer and Miller concurred. Commissioner Tate did not participate in disposition of the proceeding, which was brought before the commission a year ago.

Dashiell Reports On Rock Rate

Chairman D. A. Dashiell, N. F. A.'s traffic committee, reports that he has received a letter from D. T. Lawrence, Chairman of the Emergency Charge Committee, Traffic Executive Association, Eastern Territory, stating that the question of eliminating the emergency charge on crude phosphate rock was carefully considered by that committee and it was concluded that no change should be made at present.

Containers

M. C. A. Makes Available at Nominal Price Valuable Shipping Manuals—

Manual C-1 (for shippers) and C-2 (for consignees) on "Carboys, Glass Boxed (I. C. C. 1A)" may be secured through the Manufacturing Chemists' Association, 608 Woodward Bldg., Washington, for 25c and 10c respectively. Remittance should accompany orders up to \$2.00, and stamps will be accepted on orders under \$2.00, with 10% discount on 10 or more copies of either manual.

Fine Chemicals

Bismuth Metal and Salts Decline Sharply — Iodine Highly Competitive — Quicksilver Production Summarized—

A sharp decline of 20c in the quotation on bismuth caused a downward revision in several of the important salts, including the subcarbonate, subsalicylate, subgallate, and subnitrate. A world shortage is blamed for the sudden rise in santonin. Citric and tartaric are in good demand, and sodium benzoate shipments are heavy. Hydrogen peroxide sales, too, are better than previously.

A competitive situation was blamed for a decline of 25c in iodine resublimed and later reductions were reported of 15c in potassium iodide and 40c in the sodium salt. Iodine tincture was also lower by 40c a gal. Silver nitrate was again off as a result of the unsteady conditions in the silver market. Only the entrance of the U. S. Government into the London silver market prevented a greater collapse early in the month. On July 9 the purchase of 15,000,000 ounces was made through the \$2,000,000 Equalization Fund. A slight weakness of ¼c per lb. in both the saponification and soap-lye grades of glycerine was noted but no change was made in the c.p. quotations. It is generally felt in the markets that the price revisions made were not indicative of any basic change in the strong market position of glycerine. A fair market continues for mercury and recent importations of 2,000 flasks are said to be completely out of the market and that in fact they were never in it but represented a direct purchase by 3 of the largest consumers. Current quotations are said to be around \$69.50 to \$72 a flask, according to quantity.

'34 Production—15,445 Flasks

Production of quicksilver in the U. S. during '34 totaled 15,445 flasks from 93 mines, compared with 9,669 flasks from 75 mines in '33, an advance of approximately 60% over '33 and slightly in excess of the average for the 10-year period 1924-1933, according to a survey by the Bureau of Mines.

Value Rises 99%

Value rose from \$572,666 in '33 to \$1,140,845 in '34, an increase of 99%. Domestic mines supplied a larger part of the demand last year and there was a shrinkage in the demand for imported metal with the result that imports for consumption in '34 were only about 50% of those for '33. California was, as usual, the largest producer, contributing 51% of the total output, followed by Oregon with 22%.

Important Price Changes

ADVANCED

None. July 31 June 29

DECLINED

Bismuth metal	\$0.90	\$1.10
Subsalicylate	2.35	2.45
Subcarbonate	1.40	1.55
Subnitrate	1.30	1.40
Iodine tincture	2.10	2.50
Sublimed	1.65	1.90
Potassium iodide	1.25	1.40
Silver nitrate .....	.46	.47
Sodium iodide	2.00	2.40

DEPT. OF LABOR STATISTICS

	May '35	Apr. '35	May '34
Drugs and Pharmaceuticals prices b ...	74.2	73.8	72.8
Employment, Druggist's preparations a	96.8	98.9	97.7
Payrolls, Druggist's preparations a	93.9	97.7	88.5

a 1923-'25=100.0; b 1926=100.0.

Output of quicksilver, according to states, was as follows:—

	1934		1933	
	Flasks	Value	Flasks	Value
Arkansas ...	488	\$ 36,046	*	*
California ...	7,808	576,738	3,930	\$232,762
Nevada	300	22,160	387	22,921
Oregon	3,460	255,573	1,342	79,483
Washington..	330	24,375	*	*
Texas and other states	3,059	225,953	4,010	237,500

* Included under Texas and other States. Values calculated at average price for quicksilver at New York.

Principal mercury-producing properties in '34 were:—Parker Property, Pike county, Arkansas; Great Western Mirabel, and Sulphur Bank mines, Lake county, Aetna and Oat Hill mines, Napa county, New Idria mine, San Benito county, Klau and Oceanic mines, San Luis Obispo county, and Cloverdale mine, Sonoma county, California; Blackbutte mine, Lane county, and Bretz mine, Malheur county, Oregon; Big Bend, Chisos, and Rainbow mines in Brewster county, Texas.

According to records of the Bureau of Foreign and Domestic Commerce, imports of mercury for consumption in the U. S. in '34 were 10,192 flasks compared with 20,315 flasks in '33, 3,886 flasks in '32, and an average of 13,700 flasks for the 10-year period, '23-'33. Of the quantity imported in 1934, 69% was from Spain, 24% from Mexico and the remainder from Italy and Sweden.

Foreign Demand for Apparatus

Introduction of alcohol as a motor fuel in many foreign countries is creating a considerable import demand for distillery equipment, particularly where domestic machinery manufacturers are not able to supply the demand, according to R. E. W. Harrison, Chief of the Commerce Department's machinery division.

Textile and Tanning Chemicals

¶ Production in Both Textiles and Leather but Slightly Higher, but the Outlook for Fall Business Is Brighter—Leather Colors for Spring are Announced—

The actual improvement registered in both the textile and tanning fields in July was very slight as reflected in manufacturing operations but a decided turn for the better was noted in the feeling in both industries over the immediate future. Woolen mills continued to operate close to capacity in July, the rayon producing centers stepped up schedules to near the capacity point, and a steady improvement was noted in silk production figures but very little change was apparent in cotton cloth production.

No Rayon Tax

The decision not to place a processing tax on rayon had a bullish effect on that market. July shipments ran ahead of production, and there is talk again of price advances.* July sales were next to January when a new high was reached, and leading producers have sold 95% of the August output. Consumption of cotton for June reached 385,946 bales, as compared with 469,250 in May, and 363,262 in June of last year. Census Bureau reports that the cotton spinning industry operated at 74.6% capacity, on a single shift basis, as compared with 83.4% in May, and 72.7% in June of a year ago.

Improvement Near

A steady flow of small orders from both jobbers and retailers encouraged cotton goods mills in the final few days of the month. Contract business continued to be held back, of course, but at least manufacturers felt they were getting some business on their books and that it was a prelude to large orders when current uncertainties are removed. Another heartening factor was the steadily strengthening tone in gray goods. While prices have not actually advanced, fewer goods are available at the low quotations of the early part of the week.

Rush Dyeing To Beat Rise

Efforts to push greige goods through dye houses before they became subjected to increased dyeing and finishing prices were made by converters in the final week of the month. The advances average around 3c a yard. Talk of higher finished-rayon quotations has not as yet been

* July Rayon shipments were 12% larger than in June.

† June shoe production totalled 26,485,379 pairs, compared with 30,749,816 in May, and 28,543,777 in June of 1934.

Important Price Changes			
ADVANCED			
	July 31	June 29	
Tin tetrachloride	\$ 0.26½	\$ 0.26¼	
Zinc dust .....	.064	.063	
Valonia beads	41.50	40.00	
Cups	27.50	26.00	
DECLINED			
Egg yolk, imp.	\$0.50	\$0.53	
DEPT. OF LABOR STATISTICS			
	May '35	Apr. '35	May '34
Textiles:			
Employment a	93.5	97.2	96.1
Payrolls a	75.5	82.4	74.1
Leather:			
Employment a	87.3	91.5	91.4
Payrolls a	73.1	79.1	78.9
Dyeing and Finishing Textiles:			
Employment a	110.0	114.6	113.0
Payrolls a	86.2	95.7	87.8
a 1923-'25=100.0.			

translated into actuality, but increases of 3 to 5c a yard are looked for before the end of the season. The 2c-a-yard advance in low-end silk flat crêpes will probably be followed by additional rises, now that silk weighting costs have been advanced, is the consensus of opinion in the Pater-son district.

Situation In the Leather Field

In the last 2 weeks of July a steady improvement in sentiment in the shoe production centers was reported and manufacturers now anticipate an increase in fall and winter sales of approximately 15%.† This change for the better in sentiment did not have much effect on the tanning situation and only a very moderate improvement was reported in operations from the New England, Chicago and St. Louis centers. Hide buying in July was in very small quantities with futures generally lower. However, there is every reason to believe that improvement is close at hand for shoe plants must start on fall output. Tanners are still dissatisfied with current leather quotations, insisting that they are still below replacement costs. Finished leather inventories are said, however, to be rather small. It is believed, however, that stocks in process are larger than generally believed because of the nearness of the shoe season. Nevertheless, the purchases of tanning chemicals are and have not been in as large a volume as would normally be expected. Tanners are vigorously protesting the C C C order for shoes with rubber soles.

Buying Of Chemicals Spotty

Buying in practically all items remains spotty and in small quantities although the total sales in the final week of July were decidedly better than in the opening week of the month. Egg yolk and egg albumen were again lower as a result of larger stocks. Zinc dust was advanced sharply as a result of a \$2 a ton advance

in the metal. Valonia was higher. These constitute the chief changes of the month, aside from the slightly higher levels for the tin salts.

Leather Colors for Spring

Eight basic colors for women's shoes, 7 of which are repeated from previous seasons, have been officially adopted for Spring 1936 by the joint committee of tanners, shoe manufacturers and retailers in collaboration with the Textile Color Card Association. Five new and 7 repeated colors for men's shoes were selected.

With the Chemical Suppliers

Bay State Chemical, Salem, opens a new branch office factory in Philadelphia, at 2712 N. Hope st., Joseph Friedman is manager. Company has branches in Newark and in Chicago.

Kem Products, Newark, N. J., is subjecting rayon sizing operations to careful study in the company's laboratory.

Hide Sources

Tanners and others interested may obtain without charge from the Leather & Rubber Division, Commerce Dept., Washington, a map showing the sources of hide and skin importations.

New Dye House

The R. W. Bates Pierce Dye Works will specialize in dyeing and finishing pure dye silk fabrics and the synthetic mixtures, and will locate at Haverstraw, N. Y.

Japanese Rayon Totals

Japanese rayon production records have been broken in successive months during the current year, the Dept. of Commerce reports. Output of mills during the first 4 months this year amounted to 56,790,700 lbs. against 40,187,800 in the same period last year.

Miscellaneous Notes

K. A. Bridges, of Griffin, Ga., and graduate of the textile school of North Carolina State College, is associated with General Dyestuff at Charlotte, N. C.

Belamose Corp., Rocky Hill, Conn., is now known as Hartford Rayon.

Consideration is being given to a new barter deal between Germany and Egypt whereby Germany will receive Egyptian cotton in exchange for German products, chiefly nitrogen fertilizer, medicinals, and possibly agricultural machinery.

Lead Conference Ends

International Conference of Lead Producers ended its sessions in London July 23 (they were started in N. Y. City in June) with a statement that exporters to Europe were in complete agreement and that lead production will not be increased without prior notice, confirming earlier reports to this effect.

Paints, Lacquers and Varnish

Seasonal Lull Is Reported in the Paint Field—Lead Pigments are Advanced—Building Outlook Improves—'35 Auto Production Possibilities Summarized—

Summer dullness descended upon the greater part of the raw paint materials market with full force in July, and shipments showed the usual seasonal decline. Nevertheless, producers generally reported that the total was well ahead of the same period of a year ago. Color sales are reported away ahead of July of last year and even with the best month of '35 due to an unusual call for material from the Middle West. Carbon black shipments, however, were under June of this year and about equal to July a year ago. Little change is likely through August but a fall pick-up of sizable proportions is confidently anticipated in view of the more optimistic note in the building field or at least in the residential division. July sales of paints are expected to show improvement over the same period of a year ago. Sales of lacquers remained heavy in July with automotive production totalling nearly 335,000 units.

The Month's Price Changes

Rise in the price of lead was immediately reflected in increases for red lead and litharge. Casein was off slightly last month, but the decline in stearic acid did not bring on any downward revision in the stearates and producers voiced the opinion that no change was likely in the immediate future. A slightly revised schedule was announced for the cadmium colors with some higher and others lower. The new schedule is reported as follows: light, 60c; medium light, 65c; medium, 70c; deep, 75c; and maroon, 85c. Red vermilion was reduced slightly early in the month. Another important reduction was that of \$1.35 to \$1.55 per ton on Barytes at eastern warehouse points. Competitive position in chrome green which followed the announcement of a price advance last month by certain of the producers and not by others appeared to be about over. Despite a sharp advance in metallic zinc no revision of the zinc pigments was made.

Improvement In Residential Building

The construction industry in June turned in a higher contract volume than was shown for any other month since March, '34, when activity under the PWA program was tapering from its peak. According to figures from F. W. Dodge Corp., June contracts for total construction in the 37 eastern states amounted to \$148,005,200. This represented a gain of

Important Price Changes			
ADVANCED			
	July 31	June 29	
Lead, red 95%	\$0.0665	\$0.06½	
97% .....	.069	.06¾	
98% .....	.0715	.07	
Litharge .....	.0565	.05½	
DECLINED			
Casein, dom., std.	\$0.10½	\$0.11¼	
80 mesh .....	.11	.11¾	
Vermillion	1.49	1.50	
DEPT. OF LABOR STATISTICS			
	May '35	Apr. '35	May '34
Employment a	112.6	109.2	107.4
Payrolls a	95.1	91.9	87.9
Prices b	79.9	79.2	80.3
a 1923-'25=100.0; b 1926=100.0.			

almost 18% over the total for May and almost 17% over the volume for June of last year.

Rise To Continue, Says Moody

An improvement of several years' duration in residential building reasonably may be expected, the rise in recent months apparently having definitely reversed a downtrend which started in 1928, Moody's Investor's Service declared on July 18.

In an analysis of residential building as one of the main recovery hopes, Moody's finds the chief factors in improvement to be a definite shortage in American housing revealed by Government surveys, improvement in rents and in the mortgage market, alleviation of distress conditions and readjustment of debts through HOLC and other measures and the upward trend of national income.

How Many Cars In '35?

Tentative estimates, according to N. S. Keith of the *Wall St. Journal*, now available on the probable volume indicate that for the full year '35, the combined output of the "Big Three" of the automobile industry—G. M., Ford and Chrysler—will have regained approximately two-thirds of the ground lost since the record annual total for the group was established in 1929.

This showing, which will be the result jointly of the sharp recovery in demand for motor cars during the past three years and of the competitive inroads of this central section of the industry into the market of the smaller, independent producers, will carry production of the Big Three to more than 3,200,000 cars and trucks, as closely as can be estimated now with half of the year still to run.

This would compare with the low point of 1,200,000 units for this group in 1932, and with the 1929 total of 4,300,000, an increase of 170% and a decrease of 25%, respectively.

Production Totals

Combined output of all other manufacturers (other than the "Big Three")

will be about 18% over 1934 and 62% over 1933, with the industry as a whole showing a gain of about 25% over last year and of 81% over 1933.

Output by the industry as a whole will probably run in the neighborhood of 3,600,000 units for the year, a recovery of 152% from the 17-year low of 1,431,000 in 1932, but 36% under the '29 record total.

With the Paint Companies

Culminating 3 years of research and redesigning, Pittsburgh Plate Glass has been awarded first prize—a gold medal—by the *Modern Packaging* contest board for the jacket which encloses their popular Gold Stripe brush. The jacket, made of a special fiber which is impervious to linseed oil, turpentine, water, etc., preserves the bristles while the brush is not in use and maintains the shape of the brush throughout its life.

Devoc's Advertising Up

Devoc & Reynolds, established in 1754 and reputedly the oldest manufacturing concern in the country, sees better times ahead generally and good business for such as it particularly is interested in. This year Devoc is increasing its advertising appropriation more than 200%. Biggest part of the new advertising (through McCann-Erickson) will be a twice-weekly radio program.

Glidden Profits Rise

Glidden and subsidiaries report net profit for the 7 months ended on May 31 amounted to \$1,505,546, after interest, depreciation, Federal taxes and other charges. This was equivalent after dividend requirements on the 7% cumulative prior preference stock to \$1.90 a share on 650,000 no-par shares of common. In the corresponding period of the preceding year the net profit was \$1,091,931, or \$1.27 a common share.

For May net profit, on the same basis, amounted to \$288,393, and compared with a net profit of \$285,851 in the same month of '34.

A. E. Horn, chairman of the Queens (N. Y. City) Borough Federal Housing Committee, resigns to devote more time to his own business.

Additional Notes

R. H. Keene Co., Cleveland distributor, now represents C. E. Hoover of N. Y. City on Tuscan reds, browns, and bone black.

Keystone Color & Paint, York, Pa., will withdraw from paints and concentrate on colors.

Trigg Suggests

President Trigg of the N. P. V. & L. A. is urging all members to make early reservations for the annual convention at the Mayflower, Oct. 30 to Nov. 1.

Coal Tar Chemicals

¶ Benzol Prices Extended through August and September—Solvents Still in Good Demand—Toluol Stocks Remain Low—Coking Declined in June—

Price structure of the coal tar chemicals remained firm and unchanged in the past 30 day period with the exception of a 15c advance in crude naphthalene. Scarcity of toluol, xylol and solvent naphtha, a condition that has prevailed for several months, remains unchanged. With the automotive centers turning out over 300,000 units for July demand for solvents in both the coatings and rubber fields remains at extremely high levels. Undoubtedly a sharp decline in August and possibly the first few weeks of September will take place, but car sales are holding at a high level and the re-tooling period will be rushed.

Benzol Strengthens

Further reduction in the benzol stocks last month had the effect of adding additional strength to the price structure of the industrial grade. Producers announced in the 3rd week of the month a continuance of the present benzol schedule through August and September. Phenol producers report satisfactory volume moving into the synthetic resin field although this is a seasonably dull period for this industry. Creosote shipments were also reported in large quantities. A slightly better volume of intermediates indicated that the dye producers were beginning to prepare for a more active period in textiles and leather. The price structure remained very firm.

June Coking Operations Off 3.4%

Production of coke declined in June. Output of both beehive and byproduct coke amounted to 2,660,113 tons, or 89,074 tons per working day. This represents a decrease of 3.4% when compared with the

Important Price Changes

ADVANCED

None. July 31 June 29

DECLINED

None.

May rate of 92,215 tons, and was 12.7% less than the rate prevailing in June a year ago.

Output of byproduct coke for the 30 days of June amounted to 2,599,613 tons, or 86,654 tons per working day. Compared with May, June rate fell off 3.8%, bulk of the decrease occurring at furnace plants, where the rate of 56,668 tons was 5.2% less than that of the preceding month. At merchant plants the rate was 1.2% below that of May. A decline of 7.1% was reported in the pig iron industry. Production of beehive coke increased during the month, average daily output of 2,420 tons being 14.9% above that of May.

Less Cumulations

Cumulations of coke for the first half of '35 show decreases over the corresponding period of '34. Byproduct coke production decreased 2.6%, beehive coke 21.6%, and total coke 3.2%. At merchant plants the output for the first 6 months of '35 declined 3.2%, and at furnace plants 2.2%.

No Change In Volume

Volume of coke on hand at byproduct plants at the end of June remained practically the same as at the beginning of the month. Compared with the same period of '34, however, there was an increase of 36.1%. An increase in production of coke is anticipated for the next few months at least.

French Produce Phenol

Production of synthetic phenol is now being carried out at full capacity at the

Oissel factory of Etablissements Kuhlmann, France.

Solvents

¶ Spread Narrowing in Tankcar Quotations at Mid-West Refineries—One Producer Revises Tankwagon Price—New Marketing Plan for Anti-Freeze Alcohol

Solvents were again in good demand as production in the automotive and rubber centers exceeded earlier estimates by rather a wide margin. Spread in tankcar prices quoted by different refiners of petroleum solvents in the mid-continent area still remains unchanged, but a firmer

Important Price Changes

ADVANCED

None. July 31 June 29

DECLINED

None.

DEPT. OF LABOR STATISTICS

May '35 Apr. '35 May '34

Petroleum Refining:
Employment a 108.3 108.3 109.5
Payrolls a 97.1 96.9 92.7

a 1923-'25=100.0; z Revised.

condition in the very near future appears likely, according to those who are following the market closely. One producer in that area has revised the tankwagon delivery price, the net figures in each case representing a reduction of 2 and 6c a gal. According to the new method of pricing, cleaners' naphthas and v.m.&p. naphthas are 3½c higher than the tankwagon price for leaded gasoline, and Stoddard solvent and petroleum spirits are 2½c above the tankwagon leaded gasoline price. A discount of 1c is allowed for deliveries of 150 gals. or more. Whether the other producers in the field will follow suit remains to be seen.

Seek Greater Stability

Greater stability is expected in the anti-freeze markets for the coming season as a result of a new marketing plan. Jobbers and dealers will, in effect, receive the material on consignment instead of outright purchasing as in the past. Old plan has led to severe weakness in price when the season begins to close, particularly in those years when the weather has been mild and stocks in the hands of "seconds" were large. There will be, according to the new marketing method, no need for the jobber to unload. Coincident with the announcement of the new marketing plan a rise of 4c a gallon in anti-freeze alcohol was reported. Dealers, it is said, will receive a 20% commission on sales and the dealer schedule as released reads as follows: At 49c per gallon in 54-gal. drums; 55c in 5-gal. drums and 50c per gal. in gallon cans. These prices are f.o.b. dealer's city, East of Rocky Mountains. For points not in this territory 3c per gallon is added.

Important Statistics of the Coal Tar Industry

	June 1935	May 1935	June 1934	Total 1935	Total 1934
By-product coke prod., tons	2,599,613	2,793,336	2,989,875	16,556,648	16,995,047
Benzol production, gals.	5,736,000	6,102,000	6,724,000	36,467,000	38,033,000
Light oil production, gals.	10,913,514	11,724,714	12,697,850	69,522,161	72,169,762
Tar output, gals.	34,697,450	37,276,506	40,370,406	221,032,525	229,322,891
Ammonium sulfate prod., tons ..	39,877	42,861	46,300	253,541	261,900

United States Production and Sales Dyes by Classes of Application, 1934*

Class of application	Production		Sales			
	Quantity Pounds	Per cent. of total	Quantity Pounds	Per cent. of total	Value	Per cent. of total
Acid	11,635,651	13.35	10,481,882	12.43	\$ 8,231,823	19.03
Basic	4,380,981	5.02	4,096,744	4.86	3,649,446	8.44
Direct	22,450,350	25.75	21,628,679	25.65	11,673,592	26.99
Lake and spirit-soluble	3,580,534	4.11	3,082,112	3.66	2,357,128	5.45
Mordant and chrome	4,154,390	4.77	3,397,155	4.03	1,636,925	3.78
Sulfur	13,441,952	15.42	14,215,259	16.86	3,142,387	7.27
Vats (incl. indigo)	26,963,234	30.93	26,846,964	31.84	11,996,370	27.74
(a) Indigo	15,818,492	18.15	16,120,738	19.12	2,887,320	6.68
(b) Other vats	11,144,742	12.78	10,726,226	12.72	9,109,050	21.06
Unclassified	570,520	.65	560,250	.67	562,944	1.30
Total	87,177,612	100.00	84,309,045	100.00	\$43,250,615	100.00

* Data compiled by the U. S. Tariff Commission.

Methanol Unchanged

Methanol prices, both pure and synthetic, to date remain unchanged. June production of crude amounted to 341,093 gals. as compared with 298,105 in June last year. Synthetic was produced to the extent of 1,198,186 gals. in June as against 922,551 in June last year. Production of crude for the 1st 6 months amounted to 2,097,829 gals. as compared with 2,029,392 in the same period last year. Synthetic output amounted to 7,301,811 gals. as compared with 5,162,344 in the corresponding 6 months of '34.

Acetone, butyl acetate, ethyl acetate, and butyl alcohol quotations remained unchanged from former levels. Shipments were in fairly good volume for this period of the year, largely as a result of continued heavy production in the automotive centers and the high rate of activity in rayon production.

Corn Grind In June

A corn grind of 4,027,941 bu. for the domestic market during June was reported today by 11 refiners of starches, syrups, sugars and other derivatives of corn. Corn Industries Research Foundation, in announcing the grind on behalf of the refiners, states that the June volume is 11.84% below the May, '35 grind and 40.22% below the June, '34 grind. Total grind for the 1st 6 months of '35 is 15.92% below the corresponding 6 months of last year and continues to show the effect of this year's unusually heavy importation of duty-free Asiatic starches.

Shellac

Shellac in the Metropolitan area again passed through an uneventful 30 day period. Buying continues light and of the hand-to-mouth variety. Some seasonal improvement is likely in the next 30 days. End-of-the-month quotations compare as follows:

	July 31	June 29	Net change
Bone dry	\$0.21	\$0.21	.....
Superfine .....	.16	.16	.....
Garnet .....	.18	.17	+.01
T. D. ....	.14	.14	.....

In London, August was quoted on the 2nd of the month at 10.2c, compared with 11.4c on June 28. Calcutta market was reported at 11c on Aug. 2, as compared with 12c on June 28. Trading in the primary markets was quiet in the last 30 day period.

Within the last 30 days the international situation in shellac has changed somewhat. American bleachers, who have been buying the flake shellac from the finance syndicate that took over the London pool's tremendous holdings of over 300,000 packages at prices more attractive than the poorer seedlac grade in the Calcutta market, are again returning to the primary market.

Chemical Specialties

¶ Ressler, du Pont, Reports on Damages by Insects and Fungus Growths—New Advertising Plans and New Products Reported on—

Insecticide production will rise from \$20,000,000 to \$150,000,000 annually, it is predicted by du Pont chemists in a report released by the A. C. S., which will consider the problems of agriculture at its 90th meeting in San Francisco, Aug. 19 to 23.

This dramatic expansion will accompany the development of new chemical products to control insects, and will provide increased employment, it is held. The manufacture of other new chemical materials to combat plant diseases, weeds, and other pests will, it is said, afford additional jobs and will result in yearly sales running into the millions.

The savings to farmers in crop production and in other ways will amount to billions of dollars, according to the chemists, foreseeing drastic cuts in the nation's annual "waste tax," due to insects, plant diseases, and weeds, of approximately \$6,500,000,000. Weeds alone are responsible for a yearly loss of \$3,000,000,000, it is declared by researchers in pest control.

I. L. Ressler, du Pont entomologist, points out that \$2,000,000,000 annual loss is caused to agriculture and its products by insects, of which there are more than 6,000 known species of economic importance in the U. S. Thirty-four of these insects alone cause a known damage of \$924,440,000.

Disease takes an annual toll of \$780,000,000 on such crops as wheat, rye, barley, oats, corn, potato, sweet potato, apple and peach, which have an average annual value of \$6,000,000,000. Forest trees and products suffer an average loss of \$410,000,000. Total annual losses due to plant diseases are placed in excess of \$1,500,000,000.

Grasselli Chemical is conducting extensive investigations in California and Washington in an effort to develop a better and less poisonous or non-poisonous stomach insecticide for the control of the codling moth and other economically important insects. Some of the insecticides being investigated are barium fluosilicate, manganese arsenate, lorol rhodanates, and new organic compounds, some of which are proving more toxic to the moth than arsenate of lead, with which these compounds are being compared.

In addition to the study of insecticides, assistants or spreading and sticking agents to be used with insecticides are

being investigated. New compounds have been developed and field evaluation is now under way.

"There is an urgent need for less poisonous or non-poisonous compounds to replace the more dangerous chemicals now in use in many fields of pest control," declares Dr. Wendell H. Tisdale, Grasselli plant pathologist.

"In addition to the injury that may be caused to valuable animals and human beings by pest control chemicals, many of the products used on plants often cause more injury than would have been caused by the parasite if no control measure were used.

"There appears to be much greater possibility for the discovery of specifics in the field of organic chemistry. Many of our cumulative poisons are metallic or inorganic chemicals. The inorganics have been rather thoroughly explored while the possibilities for developing synthetic organic compounds appear to be almost unlimited. A number of very promising organics already have been developed for use as bactericides, fungicides and insecticides."

Publicity Projects

National Carbon plans 30% increased expenditure in its annual advertising campaign for Eveready Prestone anti-freeze. "Liquid Assets," a five-reel talking picture, will be shown to 100,000 dealers, in addition to regular advertising in 325 newspapers and 16 magazines.

Procter & Gamble starts nation-wide newspaper publicity for 2nd Camay soap life annuity contest, offering \$1,000 a year for life for best slogan of 10 words or less.

Procter & Gamble promotes children's "circus contest" on behalf of P. & G. white napha soap in newspapers through the Blackman Co., N. Y. City.

Following prize awards, Colgate-Palmolive-Peet plans another Palmolive soap contest (advertising agency, Benton & Bowles).

Black Flag begins intensive publicity campaign using 230 daily newspapers.

New Specialties Announced

Commercial Solvents is placing a new methanol anti-freeze on the market and also an improved alcohol preparation which will sell at a premium over ordinary C. D. 5. Carbide is planning to push "Winter Flo," a new methanol anti-freeze vigorously.

General Foods is testing in newspapers in a half dozen cities the market possi-

bilities of Cal-X, a "water-conditioner for all kinds of washing," developed at the Mellon Institute and the Hall Laboratories in Pittsburgh. C. H. Gager is sales and advertising manager.

Southwest Chemical, Little Rock, places new moth spray, roach powder, and mill and warehouse spray on market.

Specialty Co. Notes

Cy-Co Products Co. (City Chemical of Delaware subsidiary) begins operations in Fairmont, W. Va.

Plough, Inc., Memphis, chemical specialties, purchases Mufti Co., Cincinnati.

Rug Cleaners Organize

Sept. *Good Housekeeping* contains first copy of Certified Rug Cleaners Institute, new cooperative organization at 254 W. 34th st., N. Y. City. Organization's present membership of 18 firms advocates yearly professional cleaning of floor coverings.

Clorox Profits

Clorox Chemical's net profit for the fiscal period ending June 30 is expected to exceed last year's \$2.47 a share, although the extent of such increase is dependent, in part, upon the amount of prior years' advertising and development costs which the company may elect to write off against income. Amount so charged in the '34 year was \$60,000, and on June 30, last year, there remained a total of \$229,812 yet to be written off.

This item represents the unamortized balance of such costs incurred prior to July 1, '31, at which date the company began the practice of charging all current advertising and developing costs directly to income.

Waxes

Prices Are Higher with Demand Improved—Scarcity of Carnauba Continues—

Important Price Changes

ADVANCED		
	July 31	June 29
Candelilla	\$0.13	\$0.11
Carnauba, No. 1, Yellow	.41½	.41
No. 2, Yellow	.41	.39½
No. 2, N. C.	.36	.35
No. 3, Chalky	.32½	.32
No. 3, N. C.	.34	.32
Japan	.07½	.07
Montan	.10¾	.10½

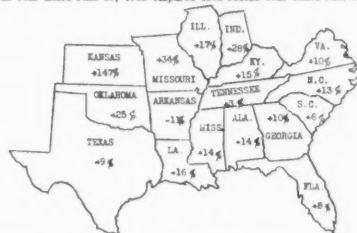
Waxes were in better demand in the past month and rises in Candelilla, Carnauba and Japan were reported. In the first week in August sales of Candelilla were made in the 13-14½c range with the spot quotation at 14c. Japan was moving at 7½c for spot delivery. Severe shortage of spot stocks of all grades of Carnauba became still further acute in the past 30 days and cables from Brazil indicate much higher replacement costs.

Fertilizers

New Potash Schedule Released—Sulfate and Cyanamid Prices Announced—Tag Sales Better than in June of Last Year—

A revised potash schedule appeared in the 2nd week of the past month in which kainit, the manure salts and the muriate were advanced 5c a unit. As expected, however, discounts were again in order running between 6 and 12% for early

FERTILIZER TAX TAG SALES - PERCENTAGE COMPARISONS
Fiscal Year ended June 30, 1935 Compared with Fiscal Year ended June 30, 1934



orders. The sulfate advance was \$3.90 a ton and \$2.50 for the sulfate-magnesia. The maximum discount of 12% ended with July, and suppliers report that the tonnages booked were heavy. Sept. 30 is the last day in which the 6% discount can be taken with specifications for delivery in equal monthly quantities up to and including Jan. 31.

Sulfate was easily the center of interest last month. Material was suddenly offered at \$20 a ton for a short period and bookings were heavy. With the statistical picture somewhat improved by this move producers then announced a new type schedule for delivery through June as follows: F.o.b. Atlantic and Gulf ports, \$24 per ton; f.o.b. Birmingham ovens, \$24 per ton; f.o.b. Northern ovens, \$22 per ton; delivered Ohio, Michigan, Indiana and Illinois, \$22 per ton; and a special price for barge lots, f.o.b. Sparrow Point, Md., \$23 per ton. The prices are without protection.

With the announcement that the schedule on cyanamid would be repeated and the extension of nitrate prices through Dec. 1, major raw material prices are out. There is every reason to believe that after the usual bickering the international nitrogen cartel is in agreement for another year. Organic ammoniates again went into lower price levels last month with but little buying in small quantities at these figures reported.

37% Improvement Over June '34

June fertilizer tax tag sales, according to reports to The N. F. A., were substantially above sales in the same month of recent years. For the 17 reporting States sales were 37% above June, '34, and 58% above June, '33. Sales in the

Important Price Changes

ADVANCED		
	July 31	June 29
Bone, raw 4½ & 50 South American	\$24.00	\$22.50

DECLINED		
Ammonium sulfate	\$22.00	\$23.50
Blood, dried, N. Y.	2.50	2.90
Chgo.	2.50	2.85
Bone meal, Chgo.	19.00	22.75
Japanese fish meal	31.50	32.00
Tankage, grd., N. Y.	2.35	2.50
Ungrd., N. Y.	2.15	2.35
Chgo.	2.25	2.35
S. A.	2.45	2.75

DEPT. OF LABOR STATISTICS

	May '35	Apr. '35	May '34
Fert. Mat. Prices b.	65.9	66.0	66.4
Mixed Fert. b	73.1	72.9	73.2
Employment a	110.1	155.3	111.8
Payrolls a	91.7	119.9	84.0

a 1923-'25=100.0; b 1926=100.0.

12 Southern States in June totaled 65,829 tons, largest quantity reported for any June since '31, and 31% larger than sales in June of last year. Florida and Louisiana were the only States to report smaller sales this year than last. South Carolina and Georgia continued to show sharp gains over '34. June sales in the South in the last 4 years averaged only 1.6% of the sales for the entire year.

Sales in the South in the first 6 months of this year amounted to 3,442,792 tons, an increase of 12% over the corresponding period of last year and 31% over the first half of '33, but 33% under the initial months of '30, the peak year. For the 12 months ended with June, Southern sales aggregated 3,929,045 tons, representing gains of 10% over the year ended June, '34, and 30% over the 12 months ended June, '33, and a decline of 30% from the 12 months ended June, '30. Tag sales for the cotton crop year to date, from Aug. 1 through June, amounted to 3,903,078 tons, an increase of 10% over the corresponding period of last year.

Sales In Mid-West

June tag sales in the 5 reporting Mid-western States amounted to 3,592 tons, just 7 times the quantity reported for June of last year and the largest for any June since 1930. Sales in the first 6 months of this year in the Midwest amounted to 187,241 tons, representing a gain of 20% over the same period of last year. For the fiscal year ended with June, sales were 321,406 tons, 26% larger than in the preceding year, 95% larger than in the 2nd preceding fiscal year, but about 37% smaller than in the year ended June, '30.

May Imports and Exports

There was a sharp rise in foreign trade in fertilizers and fertilizer materials in May, following a declining tendency in

Modern CHEMICAL Developments XX

53. NEW WAY TO BUY ROSIN

Determine the acid number, saponification number, melting point, color, ash content, and any other chemical or physical characteristic that you require in rosin. Hercules Wood Rosins are sold on this basis, and when you give specifications you can be sure that they will be fulfilled regularly.

54. CONCRETE PAINT

It is believed that paints made with Tornesit, the new chlorinated rubber product, are the best available protection for concrete. They are highly resistant to moisture, acids, and alkalis. On steel, they prevent rusting, and resist abrasion. The film has a long life under adverse conditions.

55. UNIFORM TURPENTINE

The U. S. Government, state institutions, railroads, and many of the better paint manufacturers and master painters are large users of Hercules Steam-distilled Wood Turpentine. They appreciate the uniformity which results from production under exacting control, the sparkling clarity, and its superior solvent power.

56. PAPER COATING

Paper and board used for covers, containers, and wall coverings can be given a glossy, water- and grease-resistant finish with nitrocellulose lacquer. This produces a surface that does not soil easily and which can be cleaned with soap and water.

57. SPECIAL LACQUER SOLVENT

Unlike most high-boiling lacquer solvents, Hercosol No. 80 has a colloiding action on nitrocellulose and readily dissolves gums and resins. The use of a small amount often will prevent gum blushing and will keep resins in solution.

58. WATERPROOF FABRICS

Certain types of nitrocellulose lacquer will stiffen cloth, while others make it soft and flexible; both types make it waterproof.

59. HERCULES PRODUCTS EXHIBIT

Products of Hercules Powder Company will be on exhibit at our Chemical Show display, Grand Central Palace, New York, December 2 to 7, 1935. Technical representatives will be present to discuss the chemical characteristics of our products.

More detailed information on any of the above subjects can be secured by filling in this coupon.

HERCULES POWDER COMPANY

INCORPORATED
Wilmington, Delaware

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Address.....

Company.....



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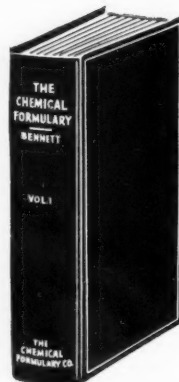


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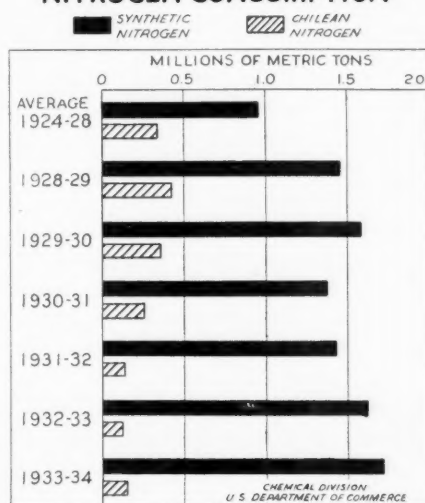
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the 3 preceding months. In contrast to the usual seasonal declines from April to May, volume of both exports and imports was much larger in May of this year than in April, and was the largest for any May in at least 6 years.

Exports of fertilizers and fertilizer materials during the month amounted to 157,462 tons, valued at \$1,445,057. Compared with the same month of last year, this represented an increase of 38% in tonnage and 77% in value. For the 1st 5 months exports under-ran the corresponding period of '34 by 1% in tonnage and 12% in value. A large increase occurred in exports of "Other Nitrogenous Chemicals" in May, in contrast to the sharp declines in this group of exports

WORLD NITROGEN CONSUMPTION



Rise in the importance of synthetic and corresponding decline in use of Chilean nitrate graphically pictured.

which had been witnessed in recent months. Recovery in May was due to shipments to Belgium and, to a smaller extent, to exports to Egypt. Increases also occurred in May in exports of ammonium sulfate, phosphate rock, and superphosphate.

Imports for the month totaled 193,512 tons with a valuation of \$3,927,477. Increase over May of last year amounted to 87% in tonnage and 64% in value. For the 1st 5 months of the year there was a gain of 11% in volume over the corresponding period of '33 and a gain of 9% in value. Increase in imports over May of last year was largely due to larger importations of sodium nitrate, which almost doubled, and potash salts. Ammonium sulfate imports continued to decline. With the exception of 14% kainite each class of potash salts was imported in larger quantity in May of this year than in May, '34.

Old Figures—New Brokers

Olivier & Waterbury, producers of fertilizer materials, open a general broker-

remain at a depressed level considerably below that for the corresponding period in '34.

Exports of potash fertilizer salts, including muriate and sulfate, of the largest participants in this trade compared as follows over the past 4 years:—

	Metric tons (Bulk weight)			
	1934	1933	1932	1931
Germany ..	946,305	698,846	623,762	853,793
France	514,126	414,154	321,744	472,807
Spain	267,304	198,656	65,969	25,649

German Sales Analyzed

German sales, both in the domestic and foreign markets, amounted to 1,200,000 metric tons in '34, an increase of 263,000 metric tons over the preceding year, and estimates for the current year are forecast at 1,300,000 metric tons, or only 10% less than the all-time record for the German industry. During the first 4 months of '35 German potash sales have increased 11% to 664,000 metric tons compared with the corresponding months of '34.

Of the total '34 sales of potash, the German-French-Polish potash cartel accounted for 1,560,000 metric tons, the re-largest annual output of record.

Potash output of the several producing countries in '34 was, according to information received by the Department of Commerce, from the consul at Frankfort-on-Main, Germany, as follows:—

	Metric tons (K ₂ O)
Germany	1,250,000
France	350,000
United States	140,000
Spain	100,000
Russia	75,000
Poland	35,000
Palestine	7,000
Other countries	7,000

Effect Of Lower Prices

An important factor in the enlarged world potash trade has been the heavy contraction in prices, causing a marked stimulation in consumption throughout the world. During the period from 1930 to 1934, world potash prices were reduced about 40%, and, although the steady receding price tendency appears to have been halted this year, prices nevertheless age office for fertilizers and fertilizer material in the Royster Bldg., Norfolk, Va., to engage in both domestic and foreign trade. Both Mr. Olivier and Mr. Waterbury are well known in foreign and domestic fertilizer fields.

Potash Surveyed

Current world production of potash fertilizer indicates that industry is now on the road to healthy recovery, a report from the American Consulate General, Frankfort-on-Main, Germany, made public by the Commerce Dept., reveals.

World production of potash in the agricultural year ended Apr. 30 amounted to about 2,000,000 metric tons of K₂O. This was an increase of about 31% over the total of 1,520,000 metric tons produced in the preceding year, and the

maining 440,000 tons being distributed among other producing countries including the U. S., Spain, Palestine and Russia.

U. S. As A Potash Exporter

While the U. S. is one of the world's largest importers of potash fertilizer materials it is able nevertheless, due to certain transportation advantages, to export a considerable amount, particularly to Japan, according to C. C. Concannon, Chief of the Commerce Dept.'s Chemical Division. Imports of potash fertilizer materials into the U. S. during '34 totalled approximately 414,000 tons, compared with 406,000 tons during the preceding year, statistics show. Exports of potash materials during these years amounted to 25,540 and 25,117, respectively.

Selling "Vigoro"

Swift promotes sale of Vigoro, by giving a "Garden Treasure Box" with each 50 or 100-lb. bag of the fertilizer. The box contains valuable information and helpful suggestions about making a garden beautiful and is given out by Swift's distributors.

Supplies of Guano

It is estimated in Peru that from 118,000 to 120,000 metric tons of guano will be extracted in the fiscal year which started April 1.

3rd Quarter Fertilizer Shipments

Regional Shippers' Advisory Boards estimate fertilizer shipments for third quarter of '35 at 31,781 cars, 7.5% increase over the corresponding '34 period. All commodities are expected to show only 2.9% increase.

Naval Stores

¶ Licensing Scheme Fails and Prices Falter Momentarily — Reasons for Collapse of the Control Program — Foreign Naval Stores Production—

The Government has lifted all regulations and restrictions on naval stores; no more loans are to be made on turpentine and rosin. Thus comes to an abrupt end another chapter in the long history of the naval stores industry. First result of the refusal of the AAA to continue to make loans through the Commodity Credit Corp. was a "break" in prices, but later the market recovered as the following comparison of end-of-the-month quotations at Savannah indicate:

	June 29	July 31
B	\$3.50	\$3.60
D	3.90	3.90
E	3.95	4.00-05
F	4.05	4.12½-15
G	4.30	4.25
H	4.30	4.27½
I	4.30	4.27½
K	4.30	4.27½-50
M	4.35	4.32½-35
N	4.70	4.65
WG	4.80	4.70
WW	5.50	5.15-20
X	5.50	5.20
Turpentine43¼	.42¾

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"Who Killed Cock Robin?"

The Savannah Weekly Naval Stores Review in discussing reasons in back of the failure of the licensing plan states in the Aug. 3 issue:

"The old question of 'Who killed Cock Robin?' can be altered now into 'Who killed the sales control system and the loan system set up by the government for the benefit of the naval stores producers?' The only answer is that the naval stores producers killed it themselves. That is, those naval stores producers who, after having had their sales allotment made and accepted for the season, proceeded to put some of their products under loans at high values to the government, sold some on the open markets, at lower than loan prices, and then sold their excess untagged supplies at very much lower than market prices to distributors, thereby assisting them to break down the worldwide markets for these commodities. Naturally, with those buying untagged turpentine at prices considerably below the market, offering it abroad and at home below the current quotations, confidence of distributors and consumers was destroyed, all faith in the governmental policies was impaired, and the result was a 'heading toward a chaotic state.'"

Naval Stores Summarized

International trade in turpentine and rosin has been considerably curtailed in recent years, particularly during the past 12 months, by increased production in many countries, establishment of naval stores plants in certain countries, quota restrictions, and tariff barriers, according to C. C. Concannon, Chief of the Commerce Dept.'s Chemical Division. The U. S. continues the world's largest producer and exporter.

Our naval stores exports have been well maintained since the beginning of '34, statistics reveal. Export shipments of rosin during the first 4 months of the year totalled 358,900 bbls., valued at \$3,015,500, compared with 318,166 bbls., valued at \$2,548,350, for the corresponding period of last year. Turpentine exports, however, have declined somewhat, the quantity decreasing from 3,205,500 gals. to 2,858,850 gals. and the value from \$1,632,600 to \$1,404,000 compared with the first 4 months of '34.

Production In Foreign Countries

Reports from France indicate that the naval stores market of that country during April showed no improvement, with the domestic demand inactive and exports light. French consuming industries continue to purchase for immediate requirements only and consumption since the beginning of '35 has been running below that of the same months last year.

Spanish turpentine exports during the first 2 months of the year were 42% above the level of January and February

of last year, according to reports from that country, with Germany taking 40% of the total, with the bulk of the balance going to Italy, Switzerland and Belgium. Rosin exports, however, were down somewhat.

In the Durango and Guadalajara naval stores producing areas of Mexico little change occurred in April. Domestic prices of rosin remained unchanged and there was little demand for turpentine. Turpentine exports in April totalled 16,000 gals.

Portugal reports that production during the coming season will be about the same as for the last though it appears larger tracts of trees will be worked. In view of the recent commercial agreement between Portugal and Germany it is believed in Portugal that exports of naval stores might improve in the coming season.

Latvia is now practically self-sufficient in turpentine at present and further extension is believed feasible if foreign markets can be found. Formerly Latvia obtained its turpentine requirements from Russia, the U. S. and France. Lithuania is studying production possibilities for rosin and turpentine and it is likely a plant will be established at Alytus, reports indicate.

A plant for producing turpentine and rosin has recently been established in the highlands of central Atjeh, Sumatra, where several hundred thousand pine trees are available. Heretofore, Sumatra has obtained practically all rosin and turpentine from the U. S.

Poland is self sufficient in turpentine with a small exportable surplus but in spite of increased rosin production and volume is inadequate for domestic requirements. Greek production of rosin and turpentine from the '34 crop, which was completed early in '35, amounted to 22,000,000 lbs. and 1,400,000 gals., respectively, according to trade estimates, or a decrease of about 10% from the '33 level.

Enlarged Storage Facilities

Turpentine storage facilities at Savannah are to be greatly enhanced by the erection of 2 large storage tanks. P. J. Rooney, vice-president of Turpentine & Rosin Factors, has signed a contract for the erection of a steel tank with a capacity of 250,000 gals., or 5,000 bbls. of turpentine.

National Tank & Export is also planning to erect a large turpentine storage tank.

Awards for New Uses

France, an important producer and exporter of turpentine and rosin, recently announced a contest in which prizes will be awarded to persons submitting the best

inventions or processes which involve new or improved uses for French naval stores products.

New Distributors

Joseph R. Cochran Co., 756 N. 4th st., Minneapolis, is now distributing General Naval Stores products in that territory.

John H. Calo and Thomas P. Lydon, formerly with General Naval Stores, form a partnership of Calo & Lydon to deal in naval stores and pine oil products. Offices are being established at 90 West st., N. Y. City.

Valuable Booklet

General Naval Stores issues "Description of Newport Rosins and Their uses," a valuable booklet for all using rosin in any process. Copies are available at the N. Y. City office.

Oils and Fats

¶ Chinawood Prices Rise but Other Important Vegetable and Fish Oils Decline in July—Cottonseed Trading in Light Volume—Lard at New High—

July oils and fats markets were featured by bullish conditions in the primary market for Chinawood and by shading in coconut. Soybean, peanut, linseed, and palm were also off from the higher levels of the past few months. Linseed closed at an inside price of about 8.4c in tanks. In the fish oil group refined menhaden, refined sardine, and refined whale were quoted lower. After a long period of firmness stearic acid prices declined. In the animal oils oleo stearine and tallow closed the month with losses from the previous month's close. The fact that several recent decisions have thrown considerable doubt about the constitutionality of the AAA, processing taxes, etc., has exerted a bearish influence on all commodity markets. Trading in bleachable cottonseed was rather quiet in July with fluctuations moving within fairly narrow limits but new lows for the year were made. End-of-the-month closing prices compare as follows:

	1935	June 29	July 31	Last year
Aug.	10.04-10.08	9.55*	6.05*	
Sept.	10.08†	9.72-9.77	6.16-6.19	
Oct.	9.95-10.10	9.77-9.82	6.20-6.24	
Nov.	10.05†	9.70-9.84	6.25	
Dec.	10.08-10.12	9.74-9.78	6.38-6.42	

	1936		
Jan.	10.08-10.20	9.78-9.81	6.45

† Sales; * Bid.

Crude closed the month at the nominal price of 8½c.

Cottonseed oil year ended July 31. Consumption or disappearance for the past 3 years, according to the N. Y. Produce Exchange, has averaged around 3,000,000 bbls., showing marked uniformity. The



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10-year average has been 3,300,000 bbls. While consumption for the 11 months of this season is placed at 2,959,000 bbls., the consumption evidently has been heavier than indicated because of the addition to supply of foreign cottonseed oil, amounting so far this season to 278,390 bbls. With this addition to supply, it is safe to assume that the actual consumption has been greater by approximately 200,000 bbls. so far this season than the above figure of 2,959,000 indicates.

Should July consumption total to the monthly average of 250,000 bbls., total consumption for the season, based on the estimated figure of 3,400,000 bbls., which includes the addition of foreign oil, would exceed the 10-year average, and considerably exceed the average for the past 3 years. Herein lies much of the reason for the continued strength in the cottonseed oil market.

Lard At New High

Outlook for still higher prices of lard is more than favorable. An upward trend in hog production is expected to start this fall, but it will not cause an increase in slaughter supplies until the late spring of '36. Hog slaughter next winter will be even smaller than the very small slaughter of last winter. Although there will be some increase next summer, total for the marketing year beginning Oct. 1, '35, will be somewhat less than in the current year. These are conclusions announced in the hog outlook report issued by the Bureau of Agricultural Economics.

How rapidly hog production will increase during the next 2 years, bureau says, is uncertain, since there are no other periods in which the decrease in production was so great as it was in '34-'35. If feed grain production this year should be about as forecast in early July and if the relationship between hog prices and corn prices should prove to be as now appears probable, an increase in hog production in '36 over '35 of 25% would be about the maximum that could be expected, says the bureau.

Storage stocks of lard on July 1 were the smallest on record for that date. Bureau states that although stocks of lard at the beginning of the new storage season next winter are expected to be much smaller than average, and slaughter supplies of hogs during the fall and early winter will be unusually small, the demand for hog-products for storage may not be so strong as in the corresponding period last winter.

Parity Spreads

Parity between oil and lard has spread considerably in the past few weeks. During the years of the depression, when both commodities fell to excessively low levels, the spread amounted only to 1/2c per lb. or less. In January, '34, lard was 50 points over cottonseed and in January

of this year lard was 2c over oil, about the average parity in pre-depression years. The uses for oil have broadened.

Hog "Bootlegging"

Just how serious the situation is vividly pictured by Alva Johnston, writing in the June 29th issue of the *Saturday Evening Post* on "Hot Pork." He reports that the newest of rackets is the bootlegging of pigs; that hot pork is coming to market like hot oil. He discloses that the processing tax on a 200-pound hog is \$4.50; that according to the packers the Government has been lost by tax-dodging pigs. He shows how pig bootlegging and meat speakeasies are on the increase. This represents a huge number of pigs and in nearly all cases there is no attempt at lard recovery, etc., in the small plants where such contraband is handled therefore, the lard situation looks even blacker.

Production Of Tallow

Factory production of inedible tallow for the 1st quarter of this year was the smallest for any quarter in several years, amounting only to 102,144,000 lbs., or 34% under that of the same quarter last year, the Produce Exchange points out in one of its weekly reviews. This is partly due to the fact that nearly all beef fats (edible and inedible) were used for inedible purposes in the 1st part of '34. In '35, however, fats suitable for edible have been going to edible use because of the big spread in price between edible and inedible. The low production also reflects the record one-year decline in '34 in cattle numbers in this country.

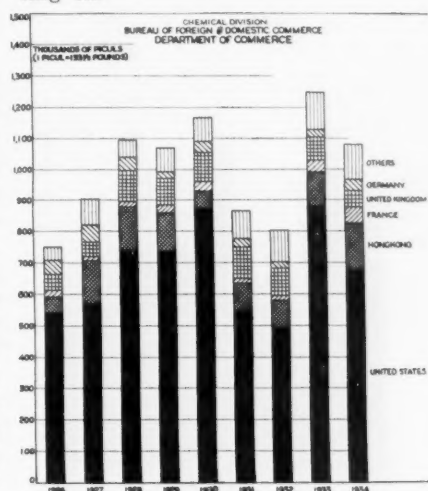
Situation Tight In Soya

Soy bean oil mills are reported to be unwilling to offer oil for shipment beyond December as higher quotations are anticipated. It is pointed out that only the competition of foreign soy bean oil has forced the price so low at the present time and with a firmer tone in the international edible oil structure anticipated crushers are reluctant to quote far ahead. A similar attitude in the case of some other edible oils is reported.

Tung Oil Consumption

The American paint and varnish industry consumed almost 121,500,000 lbs. of Chinese tung oil valued at \$10,930,000 in '34, based on average domestic prices for the year, an increase of about 12% in quantity and more than 50% in value over '33. The domestic price averaged 9c per lb. in 1934 as compared with 7 for '33. Interesting is the present quotation of approximately 15 1/2c for tanks for future delivery. Several factors were responsible for this advance, including dollar depreciation, and shortage of stocks in China resulting from a smaller crop and to disturbed conditions in the Changteh area, the major concen-

tration pointed in Human Province for tung oil.



Importance of U. S. chinawood oil market shown graphically.

Imports of tung oil declined 7 1/2% in '34 to 109,787,000 lbs., compared with '33, statistics show. Stocks at the beginning of the year totalled 41,750,500 lbs. compared with 31,000,000 lbs. at the beginning of '33 but at the end of '34 stocks had declined to 30,092,000 lbs. compared with 42,000,000 lbs. at the end of '33. Invoice value of imports during the first part of the year varied from 5 to 5.3¢ per lb. but advanced steadily, particularly during the latter half of the year, until an average of 7.4¢ per lb. was reached in December. The invoice value continued high in January, '35, averaging 7 1/2¢ per lb. for the month.

Beating the Tax

Philippine producers of coconut oil are considering processing coconut oil into fatty acid, which would not be fit for human consumption, before shipping it to the U. S., states Trade Commissioner J. Bartlett Richards, Manila.

Gums

Trading Light in July with Few Price Changes—

Varnish gums passed through an extremely quiet period of trading in July.

Important Price Changes

ADVANCED			
	July 31	June 29	
Dammar Singapore, No. 1	\$0.16 1/2	\$0.16 1/2	
No. 2	.12 1/2	.12 1/2	
DECLINED			
Arabic sorts	\$0.11	\$0.11 1/2	

There was little forward business placed and purchasing by consumers was almost entirely for small quantities for spot delivery. Prices were generally firm at levels unchanged from June. Importers were closely watching the exchange rate particularly for guilders as a guide to replacement costs later on.

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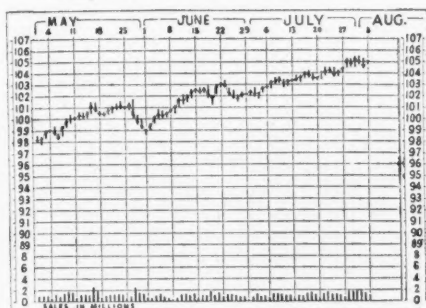
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Chemical Finances

[Stocks Rise for the Third Successive Month—Trading Volume Heavier—Chemical Stocks Show Net Value Gain of \$168,464,041 for the Month—Half-Yearly Statements Favorable—

July witnessed the rise of the stock market out of the doldrums of the past months, and in a rush of trading many new highs for the current year were registered. Trading volume was impressive, reaching 1,500,000 to 2,000,000 shares on several successive days, and a

Daily Record of Stock Market Trend



—N. Y. Herald-Tribune

total for the month of 29,429,387 shares against 22,339,512 shares in June and 21,115,884 in July a year ago.

The bullish sentiment was the direct result of noticeable improvement in business and, particularly, a strong revival in the durable goods industries, the weak spot in the recovery picture in the past 2 years. Such improvement made an earlier appearance than was expected and the one pessimistic thought that might be expressed is that such improvement may discount some of the betterment that might reasonably be looked for in the early fall months. On the other hand, there are large numbers who do not view the gains in this light, and anticipate additional widespread gains along all the business fronts. Feeling on the political situation was helped last month by the defeat of the administration on the "death sentence" in the utility holding bill indicating further independence on the part of Congress.

The July stock rise totalled \$2,686,022,655 as against a gain of only \$1,678,306,174 in June and \$1,100,414,467 in May.

Average price per share on Aug. 1 was reported \$29.76, compared with \$27.78 at the beginning of July.

July Chemical Gain Under June

Gain in chemical stocks last month did not reach the total reported for June but this is perfectly understandable for the chemicals have been in strong demand over a long period of time and are relatively at a higher point than all, or practically all, of the other important groups. Rise in July centered largely in the durable goods industries' stocks. Value of all chemical stocks on Aug. 1 was \$4,469,474,037, with an average price of \$60.00, as compared with \$4,301,009,996 and \$57.99 on July 1, net gains of \$168,464,041 in value and \$2.01 in the average price for the month. In June the chemical group had a gain of \$291,517,702 in value and \$3.25 in the average stock price.

Impressive gains were made in Air Reduction (5 points); Allied (5¼); du Pont (6½); and Carbide (4). Losses were shown in Columbian Carbon (½); and U.S.I. with a decline of 2½ points. Last month Air Reduction showed a net gain of 12¾; Allied, 8½; Columbian Carbon, 6½; du Pont, 3¾; Carbide, 4¾; and U.S.I., 1½. New highs were registered last month in Air Reduction, Allied, Columbian Carbon, du Pont, Carbide, and U.S.I.

Mixed Sentiment Prevails

Sentiment in the Street is mixed. While there exist good reasons for believing that the advance so far in business has largely been discounted by the advance to date, the 6 months earnings statements are on the whole of a character to inspire additional confidence. Generally they indicate better earnings so far this year over the corresponding period of last year, and the outlook for profits in the 3rd quarter are bright at the moment. An interesting comparison of the improvement in British and Amer-

Dividends and Dates

Name	Div.	Stock Record	Payable
Allied Chemical...	\$1.50	July 11	Aug. 1
Am. Smelt. & Rfg., 6% 2nd pf.	\$6.00	Aug. 9	Sept. 2
Am. Smelt. & Rfg., 7% 1st pf.	\$1.75	Aug. 9	Sept. 2
Archer-Daniels			
Midland, pf.	\$1.75	July 20	Aug. 1
Atlas Powder, pf.	\$1.50	July 19	Aug. 1
Bon Ami, Class A	\$1.00	July 15	July 31
Bon Ami, Class A	\$1.00	Oct. 15	Oct. 30
Bon Ami, Class B	50c	Sept. 18	Oct. 1
Canadian Indus., Com. A	\$1.00	June 29	July 31
Canadian Indus., Com. A	75c	June 29	July 31
Canadian Indus., Com. B	\$1.00	June 29	July 31
Canadian Indus., Com. B	75c	June 29	July 31
Colgate-Palmolive-Peet	12½c	Aug. 6	Sept. 2
Colgate-Palmolive-Peet, pf.	\$1.50	Sept. 5	Oct. 1
Courtaulds, Ltd. (A. D. R.)	2½%	July 18	Aug. 21
Dow Chemical	50c	Aug. 1	Aug. 15
Dow Chemical, pf.	\$1.75	Aug. 1	Aug. 15
Freeport Texas	25c	Aug. 15	Sept. 2
Freeport Texas, pf.	\$1.50	Oct. 15	Nov. 1
Freeport Texas, pf.	\$1.50	July 15	Aug. 1
Great West. Elec. Chem., In.	80c	Aug. 5	Aug. 15
Hercules Powder, pf.	\$1.75	Aug. 2	Aug. 15
Int'l Nickel, pf.	\$1.75	July 2	Aug. 1
Int. Print. Ink	25c	July 15	Aug. 1
Int. Print. Ink, pf.	\$1.50	July 15	Aug. 1
Lindsay L. & C.	10c	Aug. 3	Aug. 12
Liquid Carbonic	25c	July 17	Aug. 1
Monsanto Chem., E	25c	Aug. 25	Sept. 15
Monsanto Chem., Q	25c	Aug. 25	Sept. 15
Nat'l Gypsum, pf. (maj.)	\$1.50	Aug. 1	Aug. 15
Nat'l Gypsum, pf. (maj.)*	1 sh.	Aug. 1	Aug. 15
Nat'l Gypsum, pf. (min.)	\$1.25	Aug. 1	Aug. 15
Nat'l Gypsum, pf. (min.)*	¾ sh.	Aug. 1	Aug. 15
Nat. Lead	\$1.25	Sept. 13	Sept. 30
Nat. Lead, Cl. A pf.	\$1.75	Aug. 30	Sept. 14
Nat. Lead, Cl. B pf.	\$1.50	Oct. 18	Nov. 1
Nat. Lead, Cl. B pf.	\$1.50	July 19	Aug. 1
N. J. Zinc	50c	July 19	Aug. 10
Parker Rust Prf.	75c	Aug. 10	Aug. 20
Parker Rust Prf. 10% stk.	Aug. 10	Aug. 10	Aug. 20
Pittsburgh Pl. Glass	\$1.00	July 20	Aug. 15
P. & G.	37½c	July 25	Aug. 15
Sher. Williams†	\$1.00	July 31	Aug. 15
Sher. Williams, pf.	\$1.50	Aug. 31	Sept. 3
Solvay Am. Invest., 5½% pf.	\$1.37½	July 15	Aug. 15
Texas Gulf S.	50c	Sept. 3	Sept. 10
Virginia-Carolina Chem., pr. pf.	\$8.00	July 31	Aug. 12
Westvaco Chlorine	10c	Aug. 15	Sept. 2

* Payable in new second preferred.
† Increased.

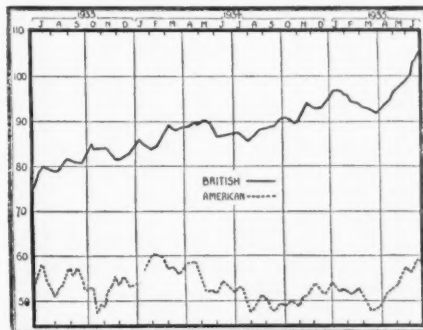
Price Trend of Chemical Company Stocks

	June 29	July 5	July 12	July 19	July 26	July 31	Net gain or loss last month	Price on July 31, 1934	1935 High	Low
Air Reduction	142	145½	146¾	149¼	148¼	147	+5	99	149¾*	104¾
Allied Chemical	153½	156	157½	159½	159	158¾	+5¼	124¾	160¼*	125
Columbian Carbon	90	90¾	90	92	92	89½	-½	61¼	94*	67
Com. Solvents	19½	20	19¾	21¼	21½	20	+½	16¾	23¾	17½
du Pont	101	103¾	106¾	106	107½	107¼	+6¼	85¾	108*	86¾
Hercules Powder	83½	83¾	84¾	85	82¾	84	+¾	85¼	85¼	71
Mathieson	30	31	31½	31¾	30¾	29¾	-½	27¾	32	23¾
Monsanto	72½	72½	74	74¾	71¼	72¾	+¾	49	77¼	55
Std. of N. J.	45¾	47½	48¾	46¾	46¼	47	+1¾	41½	50½	35¾
Texas Gulf S.	33¾	34¾	34¾	34¾	34½	34½	+¾	31¾	36¾	28¾
Union Carbide	60¾	64	64¾	65	63¾	64¾	+4	65¾*	65¾*	44
U. S. I.	42½	43¾	46½	45½	42	40	-2½	37	46¾*	35¾

a July 10th.

* New highs in July.

ican common shares is provided in British *Nature* in the form of a graph and clearly indicates the greater rapidity of recovery



Path of recovery in U. S. common stocks compares unfavorably with British gains.

in Great Britain over the halting progress of the last 2 years in the U. S. The British line is a chart of the British Financial News Index of 30 ordinary

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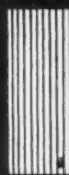
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shares while for the comparison Standard Statistics Index of 50 common shares was employed.

Earnings Statements

A large number of important 6-months' earnings statements were released last month including those of the following chemical companies:—

Du Pont and wholly owned subsidiaries for quarter ended June 30, subject to audit and year-end adjustments, report net income of \$11,353,343 after depreciation, obsolescence, interest, federal taxes, etc., comparing with \$11,097,142 in preceding quarter and \$11,825,444 in June quarter of previous year.

Although du Pont's own operations in the 3 months ended June 30, last, were more profitable than in the like period of a year ago, net profit showing was ad-

versely affected by a decline in the revenue derived from the company's investment account. This account is made up of government securities, issues of controlled but not wholly owned concerns and miscellaneous holdings.

Of the total net income for the period of \$11,353,343, equivalent to 89c a share on the common, revenue from investment holdings accounted for \$3,179,911. In the similar period of '34 income from investments contributed \$4,467,354 of the total net profit of \$11,925,444, or 96c a common share.

Income on G. M. common was the same as last year at \$2,499,361, or almost 23c a share, on du Pont common, while other income was \$680,550 or slightly over 6c a share compared with \$1,967,993 or almost 18c a share. Thus du Pont's own operations brought in net for the

common of 60c a share against 55c in the June quarter of '34.

Monsanto Earns \$923,125

Monsanto's net earnings for the 2nd quarter were \$923,125 or 94.8c a share on 974,133 shares outstanding June 30. Earnings as reported are subject to independent audit and include earnings of subsidiaries of Swann which were acquired during the period. Net earnings for the same quarter last year were \$704,918 or 81½c a share on the 864,000 shares then outstanding. Net earnings for the 6 months, including Swann earnings, were \$1,848,449 or \$1.90 a share, compared to \$1,397,035 or \$1.59½ a share earned during the same period last year.

Balance sheet as of June 30 shows that all outstanding preferred stock of Swann subsidiaries totaling \$703,600 was retired during the 2nd quarter, as well as all outstanding Monsanto 5½% mortgage bonds in the amount of \$877,500. The balance sheet, first issued since the Swann merger, shows gross assets of \$34,655,643. Current assets are \$12,432,934 against current liabilities of \$2,437,843. Cash and marketable securities are shown at \$4,741,434.

Cyanamid's Net Rises Sharply

For the 6 months ended on June 30, net income of American Cyanamid and subsidiaries was \$1,493,680, compared with \$1,066,146 in the same period a year ago, according to the interim consolidated income statement released. Earnings are equivalent to 59c on each of the 2,520,370 common shares outstanding at the close of the period, against 42c in the '34 period. Net operating profit, after deduction of administrative and other expenses but before depletion and depreciation, stands at \$3,291,189.

Dow's Earnings Decline Slightly

Dow in report for fiscal year ended May 31, shows net profit of \$3,320,970 after depreciation, federal taxes, etc., equivalent after 7% preferred dividend requirements, to \$3.32 a share on 937,714 no-par shares of common, excluding 7,286 shares in treasury. This compares with \$3,577,651 or \$5.35 a share on 630,000 common in preceding year. Company paid a 50% stock dividend July 2, '34.

Dividend Changes

Monsanto directors declare an extra dividend of 25c a share in addition to the usual dividend of 25c a share, both to be paid Sept. 14 to stockholders of record Aug. 24 next.

V.-C. directors declare a dividend of \$8 a share on the 7% prior preference stock. Dividend is payable Aug. 12 to holders of record at the close of business July 25. Dividend, first in more than 3½ years, will amount to approximately \$435,000. It will be paid on 54,372 shares of this class of outstanding stock.

Earnings Statements Summarized

Company:	Annual dividends	Net income		Common share earnings		Surplus after dividends	
		1935	1934	1935	1934	1935	1934
Air Reduction:							
June 30 quarter	\$3.00	\$1,254,325	\$1,216,532	\$1.50	\$1.46	*.....	*.....
Six months, June 30	\$3.00	2,508,333	2,210,816	3.00	2.66	*.....	*.....
Atlas Powder:							
**June 30 quarter	2.00	234,447	322,472	.45	.78	*.....	*.....
Six months, June 30	2.00	479,782	677,107	.93	1.70	*.....	*.....
Bon Ami:							
June 30 quarter	\$2.00	272,627	318,102	b .77	b .89	.....	.....
Six months, June 30	\$2.00	494,774	544,620	b1.42	b1.55	.....	.....
Commercial Solvents:							
June 30 quarter	\$.60	534,795	602,733	.20	.23	.....	.....
Six months, June 30	\$.60	1,099,655	1,237,737	.41	.47	.....	.....
Cons. Chemical Industries:							
June 30 quarter	1.50	117,800	142,243	.52	.67	.....	.....
Six months, June 30	1.50	232,846	268,520	1.03	1.27	.....	.....
Corn Products Refining:							
June 30 quarter	3.00	1,747,112	2,103,754	.52	.66	.....	.....
Six months, June 30	3.00	3,881,564	4,402,165	1.19	1.40	d\$771,769	d\$243,691
Devco & Reynolds:							
Six months, May 31	\$1.00	\$201,585	\$269,377	.....	.....	.....	.....
du Pont de Nemours:							
June 30 quarter	2.60	11,353,343	11,925,444	j .89	j .96	2,528,945	3,093,331
Six months, June 30	2.60	22,450,485	23,553,598	j1.74	j1.86	4,802,281	7,552,994
General Asphalt:							
g Six months, June 30	f....	100,872	†195,726	.26	.....	.....	.....
Glidden Co.:							
Eight months, June 30	\$1.00	1,720,780	1,226,157	2.18	1.42	.....	.....
Hercules Powder:							
June 30 quarter	3.00	746,620	928,555	h .96	h1.28	.....	.....
Six months, June 30	3.00	1,543,680	1,801,481	h2.01	h2.46	.....	.....
Lindsay Light & Chemical:							
Six months, June 30	.40	30,660	21,500	.39	.23	*.....	*.....
Mathieson Alkali Works:							
June 30 quarter	1.50	297,672	339,797	h .31	h .37	.....	.....
Six months, June 30	1.50	647,853	617,424	h .68	h .67	.....	.....
Monsanto Chemical:							
g June 30 quarter	\$1.00	923,125	704,918	h .95	h .81	.....	.....
g Six months, June 30	\$1.00	1,848,449	1,379,035	h1.90	h1.59	.....	.....
National Gypsum:							
Six months, June 30	f....	296,045	184,329	a1.58	.72	.....	.....
National Lead							
Six months, June 30	5.00	2,615,510	2,066,755	h5.35	h4.06	879,513	424,943
Parker Rust Proof:							
**June 30 quarter	\$3.00	\$256,441	\$269,411	.....	.....	.....	.....
Six months, June 30	\$3.00	\$573,948	\$550,227	.....	.....	.....	.....
Penick & Ford:							
June 30 quarter	3.00	207,134	211,193	h .56	h .54	*.....	*.....
Six months, June 30	3.00	478,452	489,079	h1.29	h1.25	*.....	*.....
Pennsylvania Coal & Coke:							
June 30 quarter	f....	† 10,733	†63,984	.....	.....	.....	.....
††Six months, June 30	f....	†105,526	†46,946	.....	.....	.....	.....
Texas Gulf Sulphur:							
June 30 quarter	2.00	1,914,302	1,923,447	h .50	h .76	d 5,698	653,447
††Six months, June 30	2.00	3,455,171	3,351,225	h .90	h1.32	d384,829	811,225
Union Carbide & Carbon:							
June 30 quarter	w.40	5,332,528	4,779,505	.59	.53	.....	.....
††Six months, June 30	w.40	10,626,157	9,117,444	1.18	1.01	.....	.....
U. S. Gypsum:							
Six months, June 30	1.00	1,627,477	1,141,668	1.14	.73	757,669	273,694
U. S. Industrial Alcohol:							
Six months, June 30	2.00	275,531	352,275	.70	.90	.....	.....
Westvaco Chlorine:							
June 30 quarter	.40	152,775	152,750	.40	.42	*.....	*.....
††Six months, June 30	.40	315,008	313,064	.83	.83	*.....	*.....

** Indicated quarterly earnings as shown by comparison of company's report for first quarter of fiscal year and the six months period; g Report subject to audit and year-end adjustments; †† Indicated earnings as compiled from company's quarterly reports; h On shares outstanding at close of respective periods; * Not available; f No common dividend; w Last dividend declared; period not announced by company; \$ Plus extras; † Net loss; d Deficit; b On Class B stock; ‡ Profit before federal taxes; j On average shares.

Industrial Trends

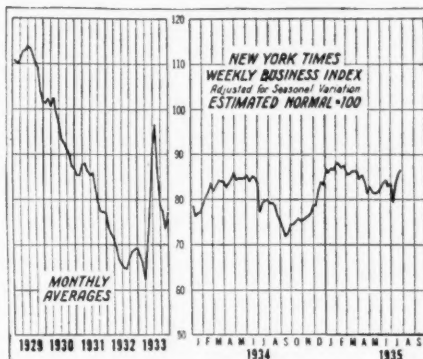
Business Trend Shows Surprising Reversal with Durable Goods Industries and Retail Trade at Higher than Seasonal Levels—

After a disappointing first week in July the business trend turned sharply higher and each succeeding week saw additional impetus given to the sudden revival which most unexpectedly has "stepped in" in the place of the "usual summer dullness." The unexpected happened, but it was most welcome. Other conditions aside from its unseasonableness make the present rise noteworthy. Durable goods industries appear to be definitely awakening from their long slumber and such encouraging signs as improvement in residential building figures are imparting new faith in the future outlook.

Retail trade remains from 10 to 30% ahead of last year. Abetted by a long siege of real hot weather, summer stocks are practically at the vanishing point and wholesalers are hard put to fill replacements. Already the sale of fall and winter goods in all lines indicates a busy season ahead that will surpass last year's fall business by a wide margin.

So-called heavy industries report im-

pressive gains of from 15 to 25% over '34. After 4 weeks of steady gain steel activity closed the month at 44% capacity compared with 26.1% on Aug. 1 of last year. This is the best rate since May.



"Summer Dullness" gives way to an upward movement in business activity of substantial proportions.

What is of greater importance, steel men agree that the rate of operations will continue to show steady improvement this fall with a peak of about 60% which would compare favorably with the spring peak of 52%. Tonnage in the last half of the year is expected to top the total for the first 6 months.

Automotive production in July was in the neighborhood of 335,000 units. August and early September production is expected to show a seasonal dip with several companies shut down for short periods. On the other hand, July sales of cars declined only about 15% or less from the June level and manufacturers who were planning to show new models in the fall to stimulate business and aid employment in the winter months are now talking seriously of withholding such offerings until after the first of the year. July sales are estimated at 306,000 units compared with 341,000 in June and a registration in July of '34 of but 266,496 units.

Textile Outlook Improves

While July operations in textiles were at a low level the outlook is decidedly better; woolen mills continue active; rayon production schedules are being increased and are close to maximum. Shoe producers report orders for future delivery larger by 15 to 20% over the same period of last year. Rubber centers reflect the continued high rate of operations in the automotive field. The glass industry while seasonably quiet in July anticipates a very active 3rd quarter, and paper production is being "stepped up" too.

Record Electrical Output

Electrical output late last month surpassed all previously recorded levels in the summer period and was 5.83% ahead of the former record reached in '29. Carloadings, however, are running below last year's figures, range in the past month being from 2.2 to 9.3% below. Loadings in the first 30 weeks of this year totalled 17,404,794, against 17,787,638 in the like period of '34, a decline of 2.1%, and 9.9% below the '33 total. Lumber output last month was at a 4-year peak. Oil refining operations are at a high rate. Fertilizer shipments in the 3rd quarter are expected to run ahead above the same period of '34 by 7½%.

The N. Y. Times Index of business activity stood at 86.4 on July 27, compared with 83.0 on June 22 and 79.8 on July 28, '34. Commodity prices gained irregularly during July. All of the outstanding indices, such as the National Fertilizer Association, Fisher's, Dept. of Labor, and the N. Y. Journal of Commerce, show net gains, but the trend in individual items is mixed.

Statistics of Business

	June 1935	June 1934	May 1935	May 1934	April 1935	April 1934
Automotive production	361,320	306,477	364,727	330,455	447,546	371,338
Bldg. contracts†	\$148,005	\$127,131	\$126,718	\$134,363	\$124,000	\$131,157
Failures, Dun & Bradstreet	961	1,033	1,027	977	1,115	1,052
Merchandise imports‡	\$156,756	\$136,109	\$170,559	\$154,647	\$170,567	\$146,523
Merchandise exports‡	\$170,193	\$170,519	\$165,457	\$160,197	\$164,350	\$179,427
Newsprint Production						
Canada, tons	232,020	229,637	242,693	242,539	222,244	216,508
U. S., tons	77,339	83,504	84,323	89,726	74,891	83,652
Newfoundland, tons	27,559	28,571	29,658	28,148	26,288	25,311
Mexico, tons	1,683	1,813	846	1,666	1,337	1,616
Total, tons	338,601	343,525	357,520	362,079	324,760	327,086
Plate glass prod., sq. ft.	13,162,515	6,520,081	14,581,557	7,764,477	16,998,914	16,998,914
Steel ingots production	2,230,893	3,059,483	2,635,857	3,352,788	2,640,504	2,897,808
Steel activity, % capacity	40.31	53.44	44.10	56.40	45.28	52.64
Pig iron production	1,552,000	1,930,000	1,727,095	2,042,896	1,663,475	1,726,851
U. S. consumption, crude rubber, tons	36,623	40,147	41,568	42,918	44,714	44,853
Tire shipments			4,067,386	5,282,995	5,143,599	4,438,378
Tire production			4,175,170	4,457,801	4,511,635	4,769,980
Tire inventory				11,126,567	11,003,237	11,980,732
Dept. of Labor Indices†						
Factory payrolls, totals‡	66.5	64.9	68.5	67.1	70.8	67.3
Factory employment‡	79.7	81.1	81.3	82.6	82.3	82.3
Chemical price index‡	86.3	78.6	87.5	78.6	87.2	78.6
Chemical employment‡			108.0	106.1	112.3	110.8
Chemical payrolls‡			94.9	88.3	95.9	95.8
Chemicals and Related Products						
Exports‡	\$7,979	\$8,189	\$8,573	\$7,335	\$7,796	\$7,840
Imports‡	\$4,575	\$4,418	\$7,182	\$5,862	\$7,236	\$8,509
Stocks, mfd. goods‡			114	117	119	123
Stocks, raw materials‡			84	94	87	96
Cement prod., ratio of prod. to capacity	39.6	39.8	36.1	37.5	27.9	
Anthracite prod., tons	4,878,738	3,495,223	4,346,863	4,491,418	4,168,364	4,173,110
Bituminous prod., tons			26,790,000	27,385,000	21,937,000	24,599,000
Tire rim inspections	1,428,314	1,015,730	1,561,434			

Week Ending	Carloadings			Electrical Output§			Jour. of Com. Price Index	National Fertilizer Association Indices				Chem. & Drug Price Index	% Steel Activity	N. Y. Times Index	
	1935	1934	% Change	1935	1934	% Change		Fats & Oils	Chem. & Drugs	Mixed Fert.	All Groups			Bus. Act.	Fisher's Pur. Power
June 29.....	618,036	646,003	-4.3	1,772,138	1,688,211	+5.0	77.7	65.6	94.6	77.7	64.4	77.2	80.0	83.4	122.6
July 6.....	472,421	520,741	-9.3	1,655,420	1,555,844	+6.4	78.1	65.6	94.6	77.7	64.3	77.5	79.5	83.5	122.4
July 13.....	566,488	604,192	-6.2	1,766,010	1,647,680	+7.2	78.7	66.3	94.6	77.7	63.7	77.4	79.5	83.6	122.5
July 20.....	593,366	616,040	-3.7	1,807,000	1,663,000	+8.6	79.0	66.0	94.6	71.4	63.6	77.3	79.5	85.5	122.4
July 27.....	596,462	610,042	-2.2	1,823,521	1,683,542	+8.3	79.0	68.9	94.6	71.4	62.5	77.8	78.4	86.4	121.1

* 37 states; † Dept. of Labor, 3 year average, 1923-1925 = 100.0; ‡ 000 omitted; § K.W.H., 000 omitted; a Includes all allied products but not petroleum refining; x Subject to revision; z Revised.



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Prices

	Current Market	1935		1934	
		Low	High	Low	High
Bromine, caseslb.	.30	.43	.30	.43	.43
Bronze, Al, pwd, 300 lb drs lb.	.80	1.50	.80	1.50	1.50
Gold, blk .....lb.	.40	.55	.40	.55	.40
Butanes, com 16-32° group 3 tks .....lb.	...	.04	...	.04	.02¾ .04
Butyl, Acetate, norm drs, frt allowed .....lb.	.13	.13¾	.13	.13¾	.11 .14
tks, frt allowed .....lb.	.12	.13	.12	.13	.10 .13
Secondary tks, frt allowed lb. drs, frt, allowed .....lb.	...	.096	...	.096	.08 .096
Aldehyde, 50 gal drs wks lbs.	.19	.21	.19	.21	.19 .36
Secondary, drs .....lb.	.60	.75	.60	.75	.60 .75
Carbinol, norm drs, wks lb.	.60	.75	.60	.75	.60 .75
Lactate drs .....lb.	.22½	.23½	.22½	.23½	.22½ .29
Propionate, drs .....lb.	.18	.18½	.18	.18½	.17 .22
tks, delv .....lb.	...	.17	...	.17	...
Stearate, 50 gal drs .....lb.	...	.26	...	.26	.25 .26
Tartrate, drs .....lb.	.55	.60	.55	.60	.55 .60
Cadmium, Sulfide, boxes. ....lb.	.75	.85	.75	.85	.65 .85
Cadmium Metal .....lb.	.65	.70	.55	.70	.55 .65
Calcium, Acetate, 150 lb bgs c-l, delv .....100 lb.	...	2.10	2.00	2.10	2.00 3.00
Arsenate, jobbers, East of Rocky Mts, drs .....lb.	.06	.06½	.06	.06½	...
dealers, drs .....lb.	.06½	.07½	.06½	.07½	...
South, jobbers, drs .....lb.	.06	.06½	.06	.06½	...
dealers, drs .....lb.	.06½	.06¾	.06½	.06¾	...
Carbide, drs .....lb.	.05	.06	.05	.06	.05 .06
Carbonate, tech, 100 lb bgs c-l .....lb.	1.00	1.00	1.00	1.00	1.00 1.00
Chloride, flake, 375 lb drs c-l wks .....ton	...	19.50	...	19.50	...
Solid, 650 lb drs c-l f.o.b. wks .....ton	...	17.50	...	17.50	...
Ferrocyanide, 350 lb bbls bbls .....lb.	...	.17	...	.17	...
Gluconate, tech, 125 lb bbls .....lb.	...	.28	...	.28	.25 .28
Nitrate, 100 lb bgs .....ton	...	26.50	...	26.50	26.50
Palmitate, bbls .....lb.	.21	.22	.20	.22	.19 .20
Peroxide, 100 lb drs .....lb.	...	1.25	...	1.25	...
Phosphate, tech, 450 lb bbls .....lb.	.07½	.08	.07½	.08	.07½ .08
Resinate, precip, bbls .....lb.	.13	.14	.13	.14	.13 .14
Stearate, 100 lb bbls .....lb.	.18	.20	.17	.20	.17 .19
Camphor, slabs .....lb.	.49	.50	.49	.52	.51 .59
Powder .....lb.	.49	.50	.50	.52	.51 .59
Camwood, Bk, ground bbls lb.	.16	.18	.16	.18	.16 .18
Carbon, Decolorizing, drs c-l .....lb.	.08	.15	.08	.15	.08 .15
Black, c-l, bgs, delv, price varying with zone .....lb.	.0445	.0535	.0445	.0535	.0445 .0535
lcl, bgs, delv, all zones lb.	...	.07	...	.07	.06¾ .07
cartons, delv .....lb.	...	.07¾	...	.07¾	...
cases, delv .....lb.	...	.08¾	...	.08¾	...
Bisulfide, 500 lb drs .....lb.	.05¾	.08	.05¾	.08	.05¾ .08
Dioxide, Liq 20-25 lb cyl lb.	.06	.08	.06	.08	.06 .08
Tetrachloride, 1400 lb drs, delv .....lb.	.05¾	.06	.05¾	.06	.05¾ .06
Casein, Standard, Dom grd lb. 80-100 mesh, c-l, bgs .....lb.	.11	.13¾	.10	.16	.10 .14
Castor Pomace, 5¼ NH ₃ , cl, bgs, wks .....ton	...	17.00	17.00	18.50	...
Imported, ship, bgs .....ton	...	17.25	17.25	20.00	...
Celluloid, Scraps, ivory cs lb.	.17	.18	.17	.18	.13 .18
Transparent, cs .....lb.	...	.20	...	.20	.16 .20
Cellulose, Acetate, 50 lb kgs.....lb.	.55	.60	.55	.60	.55 .90
Chalk, dropped, 175 lb bbls lb.	.03	.03¾	.03	.03¾	.03 .03¾
Precip, heavy, 560 lb cks lb.	.03	.04	.03	.04	.03 .04
Light, 250 lb cks .....lb.	.03	.04	.03	.04	.03 .04
Charcoal, Hardwood, lump, blk, wks .....bu.	...	.15	...	.15	.12 .18
Willow, powd, 100 lb bbl wks .....lb.	.06	.06¾	.06	.06¾	.06 .06¾
bgs, delv .....ton	22.40	23.00	22.40	30.00	...
Chestnut, clarified bbls wks lb.	...	.01¾	...	.01¾	.01¾ .01¾
25% tks wks .....lb.	...	.01½	...	.01½	.01¾ .01¾
Pwd, 60%, 100 lb bgs, wks .....lb.	...	.047½	...	.047½	...
China Clay, c-l, blk mines ton	...	7.00	...	7.00	7.00 9.00
Powdered, bbls .....lb.	.01	.02	.01	.02	.01 .02
Pulverized, bbls wks .....ton	10.00	12.00	10.00	12.00	10.00 12.00
Imported, lump, blk .....ton	15.00	25.00	15.00	25.00	15.00 25.00
Chlorine, cysls, lcl, wks con- tract .....lb.	.07¾	.08½	.07¾	.08½	.07 .08½
cysls, c-l, contract .....lb. f	...	.05¾	...	.05¾	...
Liq tk wks contract. ....100 lb.	...	2.00	...	2.00	1.85 2.00
Multi c-l cysls wks cont. ....lb.	2.15	2.40	2.15	2.40	2.00 2.40
Chloroacetophenone, tins, wks.....lb.	...	2.00	...	2.00	...
Chlorobenzene, Mono, 100 lb drs, lcl, wks .....lb.	.06	.07¾	.06	.07¾	.06 .07¾
Chloroform, tech, 1000 lb drs.....lb.	.20	.21	.20	.21	.20 .21
USP, 25 lb tins .....lb.	.30	.31	.30	.31	.30 .35
Chloropicrin; comml cysls. ....lb.	.85	.90	.85	.90	.85 1.25
Chrome, Green, CP .....lb.	.17	.18½	.17	.30	.20 .30
Yellow .....lb.	.14	.16	.14	.16	.15 .16
Chromium, Acetate, 8% Chrome bbls .....lb.	.05	.05¾	.05	.05¾	.05 .05¾
20° soln, 400 lb bblslb.05½05½	...
Fluoride, powd, 400 lb bbllb.	.27	.28	.27	.28	.27 .28

j A delivered price.

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Acetic Acid	Oleates
Alum	Oxalic Acid
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Ammonium Acid Fluoride	Potassium Carbonate
Ammonium Linoleate	Potassium Hydroxide
Ammonium Sulphate	Potassium Permanganate
Ammonium Sulpho Cyanide	Potassium Sulpho Cyanide
Aqua Ammonia	Resinates
Barium Chloride	Soda Ash
Barium Peroxide	Sodium Acetate
Blue Vitriol	Sodium Acid Fluoride
Boracic Acid	Sodium Bichromate
Borax	Sodium Bisulphite
Calcium Chloride	Sodium Chlorate
Carbon Disulphide	Sodium Cyanide
Carbon Tetrachloride	Sodium Hydrosulphide
Cauetic Soda	Sodium Nitrite
Chromium Acetate	Sodium Perborate
Chromium Fluoride	Sodium Phosphate
Coppers	Sodium Silicate
Cream of Tartar	Sodium Sulphide
Epsom Salts	Sodium Sulpho Cyanide
Glauber Soda	Stearates
Glycerine	Stearic Acid
Lead Acetate	Tartar, Emetic
Lead Nitrate	Tartaric Acid
Magnesium Chloride	Tin Chloride
Magnesium Sulphate	Zinc Chloride
Manganese Sulphate	Zinc Sulphate

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VICTOR
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CHICAGO

Dip Oil Glycerin

Prices

	Current Market	1935 Low High	1934 Low High
Dip Oil, see Tar Acid Oil.			
Divi Divi pods, bgs shipmt. ton	36.00	40.00	36.00 40.00
Extract,lb.	.05	.05½	.05 .05½
Egg Yolk, 200 lb. cases . .lb.	.63	.46	.63 .40
Epsom Salt, tech, 300 lb bbls			
c-1 NY100 lb.	1.80	2.00	1.80 2.25
USP, c-1, bbls100 lb.	2.00	2.00	2.25 2.25
Ether, USP anaesthesia 55 lb			
drslb.	.22	.23	.22 .23
(Conc)lb.	.09	.10	.09 .10
Ether, Isopropyl 50 gal drs lb.	.07	.08	.07 .08
tk, firt allowedlb.	.06	.06	.06 .06
Nitrous, conc, bottles . .lb.	.75	.77	.75 .77
Synthetic, wks, drs . . .lb.	.08	.09	.08 .09
Ethyl Acetate, 85% Ester			
tk,lb.	.07½	.08	.07½ .08
drslb.	.08½	.09	.08½ .09
Anhydrous, tk,lb.	.08½	.09	.08½ .09
Acetoacetate, 50 gal drs lb.	.65	.68	.65 .68
Benzylamine, 300 lb drs lb.	.88	.90	.88 .90
Bromide, tech, drs . . .lb.	.50	.55	.50 .55
Chloride, 200 lb drs . . .lb.	.22	.24	.22 .24
Chlorocarbonate cbsy . .lb.	.30	.30	.30 .30
Crotonate, drslb.	1.00	1.25	1.00 1.25
Ether, Absolute, 50 gal drs			
.lb.	.50	.52	.50 .52
Lactate, drs, wks . . .lb.	.25	.29	.25 .29
Methyl Ketone, 50 gal drs,			
firt allowedlb.	.08½	.09	.08½ .09
tk, firt allowedlb.	.07½	.07½	.07½ .07½
Oxalate, drs, wks . . .lb.	.37½	.55	.37½ .55
Oxybutyrate, 50 gal drs			
wkslb.	.30	.30½	.30 .30½
Ethylene Dibromide, 60 lb			
drslb.	.65	.70	.65 .70
Chlorhydrin, 40%, 10 gal			
cbsy chloro, cont . . .lb.	.75	.85	.75 .85
Dichloride, 50 gal drs .lb.	.0545	.0994	.0545 .0994
Glycol, 50 gal drs, wks lb.	.17	.21	.17 .21
tk, wkslb.	.16	.16	.16 .16
Mono Butyl Ether, drs,			
wkslb.	.20	.21	.20 .21
tk, wkslb.	.19	.19	.19 .19
Mono Ethyl Ether, drs,			
wkslb.	.16	.17	.16 .17
tk, wkslb.	.15	.15	.15 .15
Mono Ethyl Ether Ace-			
tate, drs, wkslb.	.17½	.18½	.17½ .18½
tk, wkslb.	.16½	.16½	.16½ .16½
Mono, Methyl Ether, drs			
wkslb.	.19	.23	.19 .23
tk, wkslb.	.18	.18	.18 .18
Stearatelb.	.18	.18	.18 .18
Oxide, cyllb.	.45	.47½	.45 .47½
Ethylidenanilinelb.	.45	.47½	.45 .47½
Feldspar, blk pottery . .ton	14.00	14.50	14.00 14.50
Powd, blk, wkston	14.00	14.50	14.00 14.50
Ferric Chloride, tech, crys,			
475 lb bblslb.	.05	.07½	.05 .07½
sol, 42° cbsylb.	.06¼	.06¼	.06¼ .06¼
Fish Scrap, dried, unground,			
wksunit l	2.25	2.25	2.90 2.25
Acid, Bulk, 6 & 3%, delv			
Norfolk & Baltimore basis			
.unit m	2.25	2.00	2.25 2.00
Fluorspar, 98%, bgston	30.00	35.50	28.00 35.50
Formaldehyde, USP, 400 lb			
bbls, wkslb.	.06	.07	.06 .07
Fossil Flourlb.	.02½	.04	.02½ .04
Fullers Earth, blk, mines			
.ton	6.50	15.00	6.50 15.00
Imp powd, c-1, bgs . . .ton	23.00	30.00	23.00 30.00
Furfural (tech) drs, wks lb.	.10	.15	.10 .15
Furfuramide (tech) 100 lb			
drslb.	.30	.30	.30 .30
Fusel Oil, 10% impurities lb.	.16	.18	.16 .18
Fustic, chipslb.	.04	.05	.04 .05
Crystals, 100 lb boxes .lb.	.20	.23	.20 .23
Liquid 50°, 600 lb bbls .lb.	.08½	.12	.08½ .12
Solid, 50 lb boxes . . .lb.	.16	.18	.16 .18
Stickston	25.00	26.00	25.00 26.00
G Salt paste, 360 lb bbls .lb.	.42	.43	.42 .43
Gall Extractlb.	.18	.20	.18 .20
Gambier, com 200 lb bgs .lb.	.06	.05	.08 .04
Singapore cubes, 150 lb bgs			
.100 lb.	.08	.09	.07½ .09½
Gelatin, tech, 100 lb cs .lb.	.50	.55	.50 .55
Glauber's Salt, tech, c-1 wks			
.100 lb.	1.10	1.30	1.10 1.30
Anhydrous, see Sodium Sul-			
fate.			
Glucose (grape sugar) dry 70-			
80° bgs, c-1, NY . . .100 lb.	3.24	3.34	3.24 3.34
Tanner's Special, 100 lb.			
bgs100 lb.	2.33	2.33	2.33 2.33
Glue, bone, com grades, c-1			
bgslb.	.08	.08	.07 .12½
Better grades, c-1, bgs lb.	.09	.09½	.09 .09½
Casein, kgslb.	.18	.22	.18 .22
Glycerin, CP, 550 lb drs .lb.	.14	.14½	.14 .14½
Dynamite, 100 lb drs . .lb.	.13½	.14½	.13½ .14½
Saponification, drs . . .lb.	.10½	.11½	.10½ .11½
Soap Lye, drslb.	.09½	.09½	.09 .09½

l + 10; m + 50

Current

Glyceryl Phthalate Gum, Yacca

	Current Market	1935 Low High	1934 Low High
Glyceryl Phthalate .....lb.	.28	.28	.28
Glyceryl Stearate, bbls.....lb.	.18	.18	.18
Glycol Phthalate .....lb.	.29	.29	.29
Glycol Stearate .....lb.	.23	.18	.23
Graphite, Crystalline, 500 lb bbls	.04	.05	.04
Flake, 500 lb. bbls .....lb.	.08	.16	.08
Amorphous, bbls .....lb.	.03	.04	.03

GUMS

Gum Aloes, Barbadoes ....lb.	.85	.90	.85	.90	.85	.90
Arabic, amber sorts .....lb.	.11	.13½	.09½	.14	.07½	.10½
White sorts, No. 1, bgs	.21	.22	.21	.22	...	...
No. 2, bgs .....lb.	.19	.20	.19	.21	...	...
Powd, bbls .....lb.	.15½	.16½	.13½	.16½	...	...
Asphaltum, Barbadoes (Man- jak) 200 lb bgs, f.o.b., NY .....lb.	.02½	.10½	.02½	.10½	.02½	.10½
Egyptian, 200 lb cases, f.o.b. NY .....lb.	.12	.15	.12	.15	.12	.15
California, f.o.b. NY, drs	29.00	55.00	29.00	55.00	...	...
Benzoin Sumatra, USP, 120 lb cases .....lb.	.20	.21	.20	.28	.18½	.23
Copal Congo, 112 lb bgs, clean, opaque .....lb.	.21½	.22½	.21½	.24½	.24½	.28
Dark, amber .....lb.	.07½	.07½	.07½	.09½	.08½	.10½
Light, amber .....lb.	.12½	.13	.12	.14½	.14½	.19
Copal, East India 180 lb bgs	.10	.10½	.09½	.10½	.09½	.10½
Macassar pale bold .....lb.	.05½	.06	.05½	.06	...	...
Chips .....lb.	.08½	.09	.08½	.09	...	...
Nubs .....lb.	.04	.04½	.03½	.04½	...	...
Dust .....lb.	.15½	.16½	.15½	.17	.16	.17
Singapore	.04½	.05½	.04½	.05½	...	...
Bold .....lb.	.10	.10½	.10	.11	...	...
Chips .....lb.	.04	.04½	.03½	.04½	...	...
Copal Manila, 180-190 lb	.11½	.12½	.11½	.12½	.11½	.14½
baskets, Loba A .....lb.	.10½	.11½	.10½	.11½	.10½	.13½
Loba B .....lb.	.10½	.10½	.10½	.11½	.09½	.12
Loba C .....lb.	.06	.06½	.06	.07½	.06½	.07½
MA sorts .....lb.	.08½	.08½	.08	.08½	.08	.09½
DBB .....lb.	.04½	.05½	.04½	.05½	...	...
Dust .....lb.	.14½	.14½	.14½	.16½	.16½	.19
Copal Pontianak, 224 lb cases, bold genuine .....lb.	.12½	.13½	.12½	.14½	...	...
Mixed .....lb.	.06½	.07½	.06½	.07½	...	...
Chips .....lb.	.09½	.10½	.09½	.10½	...	...
Nubs .....lb.	.12½	.12½	.12½	.13½	...	...
Split .....lb.	.20½	.20½	.19	.21½	...	...
Dammir Batavia, 136 lb cases	.19½	.19½	.18	.20½	...	...
A .....lb.	.17	.17½	.16	.18½	...	...
B .....lb.	.12½	.13	.11½	.13½	...	...
C .....lb.	.15	.15½	.14	.16	...	...
D .....lb.	.12½	.13½	.11½	.13½	...	...
A/D .....lb.	.06½	.07½	.07	.07½	.07	.09½
A/E .....lb.	.06½	.06½	.06½	.06½	.05½	.06½
F .....lb.	.16½	.17	.15½	.17	.15½	.18
Singapore	.12½	.13	.10½	.13	.09½	.11
No. 1 .....lb.	.04½	.05½	.04½	.05½	.05½	.07
No. 2 .....lb.	.08½	.09½	.08½	.09½	.09	.10½
No. 3 .....lb.	.05	.05½	.04½	.05½	.05	.06
Chips .....lb.	.06½	.06½	.04½	.07½	.06	.07½
Dust .....lb.	.07½	.08½	.07½	.08½	...	...
Seeds .....lb.	.11½	.12½	...	...	...	...
Ester .....lb.	.55	.56	.55	.56	.57	.65
Elemi, cons .....lb.	.65	.70	.65	.75	.67	.75
Gamboge, pipe, cases .....lb.	.11	.15	.09	.15	.09	.09½
Powdered, bbls .....lb.	.24	.25	.23	.25	.23	.25
Ghatti, sol. bgs .....lb.	.16	.17	.15	.17	.15	.16
Karaya, pow bbls xxx .....lb.	.08	.09	.08	.09	.08	.11
xx .....lb.	.07	.08	.07	.08	.07	.09
No. 1 .....lb.	.60	.60½	.60	.60½	...	...
No. 2 .....lb.	.33	.33½	.33	.33½	...	...
BX .....lb.	.19	.19½	.19	.19½	...	...
B1 .....lb.	.14½	.15	.14½	.15	...	...
B2 .....lb.	.12	.12½	.12	.12½	...	...
B3 .....lb.	.65	.65½	.65	.65½	...	...
Pale XXX .....lb.	.40	.40½	.40	.40½	...	...
No. 1 .....lb.	.22	.22½	.22	.22½	...	...
No. 2 .....lb.	.15	.15½	.15	.15½	...	...
No. 3 .....lb.	.70	.80	.70	.80	.75	.80
Kino, tins .....lb.	.55	.55½	.46	.55½	.35	.55½
Mastic .....lb.	.32½	.33	.32½	.35½	.35	.50
Sandarac, prime quality, 200 lb bgs & 300 lb cks .....lb.	.20	.21	.20	.21	.17	.21
Senegal, picked bgs .....lb.	.11½	.12½	.09½	.12½	.08	.10
Sorts .....lb.	11.00	10.50	11.00	9.50	10.75	10.75
Thus, bbls .....280 lbs.	11.00	10.50	11.00	9.50	10.75	10.75
Strained .....280 lbs.	1.25	1.30	1.15	1.30	1.00	1.20
Tragacanth, No. 1, cases	1.15	1.20	1.05	1.20	...	...
No. 2 .....lb.	1.00	1.05	.95	1.05	...	...
No. 3 .....lb.	.90	.95	.85	.95	...	...
No. 4 .....lb.	.80	.85	.75	.85	...	...
No. 5lb.	.14	.15	.14	.15
No. 6, bgslb.	.11	.12	.11	.12
Sorts, bgslb.	.03½	.03½	.03½	.03½	.03½	.04
Yacca, bgslb.						



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Helium Mercuric Chloride

Prices

	Current Market	1935 Low	1935 High	1934 Low	1934 High
Helium, cyl. (200 cu. ft.) cyl.	25.00	25.00	25.00	25.00	25.00
Hematite crystals, 400 lb	.16	.18	.16	.18	.18
bbis	.11	.11	.11	.11	.11
Paste, 500 bbls	.02 1/2	.02 1/2	.02 1/2	.02 1/2	.04 1/2
Hemlock 25%, 600 lb bbls	.02 1/2	.02 1/2	.02 1/2	.02 1/2	.04 1/2
wks	.30	.30	.30	.30	.30
Hexalene, 50 gal drs wks	.14	.14	.14	.14	.14
Hexane, normal 60-70°C.	.37	.39	.37	.39	.39
Group 3, tks	.12	.12 1/2	.12	.12	.12 1/2
Hexamethylenetetramine, lbs.	.11 1/2	.11 1/2	.11 1/2	.11 1/2	.11 1/2
Hoof Meal, f.o.b. Chicago unit	2.50	2.50	2.70	1.85	2.70
South Amer. to arrive unit	1.85	1.85	1.85	1.65	1.80
Hydrogen Peroxide, 100 vol, 140 lb cbs	.20	.21	.21	.20	.21
Hydroxyamine Hydrochloride	3.15	3.15	3.15	3.15	3.15
Hypneric, 51°, 600 lb bbls	.17	.20	.17	.20	.20
Indigo Madras, bbls	1.25	1.30	1.25	1.30	1.30
20% paste, drs	.15	.18	.15	.18	.18
Synthetic, liquid	.12	.12	.12	.12	.12
Iodine, crude	15s 1d	15s 1d	15s 1d	15s 1d	15s 1d
Resublimed, kgs	1.65	1.75	1.90	1.90	2.30
Irish Moss, ord, bales	.09	.10	.09	.10	.10
Bleached, prime, bales	.18	.19	.18	.19	.19
Iron Acetate Liq. 17°, bbls	.03	.04	.03	.04	.04
Chlorides see Ferric Chloride.					
Nitrate, coml, bbls	2.75	3.25	2.75	3.25	3.25
Oxide, English	.07 1/2	.08 3/4	.07 1/2	.08 3/4	.09
Isobutyl Carbinol (128-132°C)					
dr, wks	.33	.34	.33	.34	.34
Isopropyl Acetate, tks	.32	.32	.32	.32	.326
dr, frt allowed	.07 1/2	.07 1/2	.07 1/2	.07	.07 1/2
Ether, see Ether, isopropyl.	.08 1/2	.09	.08 1/2	.09	.09
Keiselguhr, 95 lb bgs, NY,					
Brown	60.00	70.00	60.00	70.00	60.00
Lead Acetate, brown, broken, f.o.b. NY, bbls	.09 1/4	.09 1/4	.09 1/4	.09 1/4	.09 1/4
White, broken, bbls	.11	.11	.11	.11	.11
cryst bbls	.10 1/2	.10 1/2	.10 1/2	.10 1/2	.10 1/2
gran, bbls	.11	.11	.11	.11	.11
powd, bbls	.11 1/4	.11 1/4	.11 1/4	.11 1/4	.11 1/4
Arsenate, East, jobbers,					
dr	.09	.09 1/4	.09	.09 1/4	.09
Dealers, drs	.09 1/4	.10 1/4	.09 1/4	.10 1/4	.10
West, jobbers, drs	.09	.09	.09	.09	.09
dealers, drs	.10	.10	.10	.10	.10
Linoleate, solid bbls	.26	.26 1/2	.26	.26 1/2	.26 1/2
Metal, c-l, NY	4.15	3.50	4.15	3.50	4.25
Red, dry, 95% PbO ₂					
delv	.0665	.07 1/2	.06	.0775	.06
97% PbO ₂ , delv	.069	.07 3/4	.06 1/2	.08	.07 3/4
98% PbO ₂ , delv	.0715	.08	.06 1/2	.0825	.08
Nitrate, 500 lb bbls, wks	.10	.14	.10	.14	.14
Oleate, bbls	.15	.16	.15	.16	.16
Resinate, precip, bbls	.14	.14	.14	.14	.18 1/2
Stearate, bbls	.22	.23	.22	.23	.23
White, 500 lb bbls, wks	.06 1/2	.07	.06 1/2	.07	.06 1/2
Sulfate, 500 lb bbls, wks	.06	.06	.06	.06	.06
Lime, chemical quicklime, f.o.b., wks, bulk	7.00	7.25	7.00	7.25	7.00
Hydrated, f.o.b., wks	8.50	12.00	8.50	12.00	8.50
Lime Salts, see Calcium Salts.					
Lime sulfur, sol, jobbers,					
tks	.10	.10	.10	.10	.10
dr	.13 1/2	.15 1/2	.13 1/2	.15 1/2	.15
Dealers, tks	.10 1/2	.10 1/2	.10 1/2	.10 1/2	.10
dr	.14	.16 1/2	.14	.16 1/2	.16
Linseed Meal, bgs	25.50	25.50	40.00	30.50	41.00
Litharge, coml, delv, bbls	.0565	.06 1/2	.05	.06 3/4	.051
Lithopone, dom, ordinary,					
delv, bgs	.04 1/4	.04 3/4	.04 1/4	.04 3/4	.04 1/4
bbis	.04 3/4	.05	.04 3/4	.05	.04 3/4
High strength, bgs	.06	.06 1/4	.06	.06 1/4	.06 1/4
bbis	.06 1/4	.06 1/4	.06 1/4	.06 1/4	.06 1/4
Titanated, bgs	.06	.06 1/4	.06	.06 1/4	.06 1/4
bbis	.06 1/4	.06 1/4	.06 1/4	.06 1/4	.06 1/4
Logwood, 51°, 600 lb bbls	.08 1/2	.10 1/2	.08 1/2	.10 1/2	.12 1/2
Solid, 50 lb boxes	.13 1/2	.17 1/2	.13 1/2	.17 1/2	.17 1/2
Sticks	24.00	26.00	24.00	26.00	24.00
Madder, Dutch	.22	.25	.22	.25	.22
Magnesite, calc, 500 lb bbl ton	60.00	65.00	60.00	65.00	65.00
Magnesium Carb, tech, 70 lb					
bgs, wks	.06	.06 1/4	.06	.06 1/4	.06
Chloride flake, 375 lb drs, c-l					
wks	36.00	39.00	36.00	39.00	34.00
Magnesium fluosilicate, crys, 400 lb bbls, wks	.10	.10 1/2	.10	.10 1/2	.10
Oxide, USP, light, 100 lb					
bbis	.42	.42	.42	.42	.42
Heavy, 250 lb bbls	.50	.50	.50	.50	.50
Palmitate, bbls	.23	.24	.22	.24	.23
Stearate, bbls	.20	.22	.19	.22	.20
Linoleate, lig drs	.18	.19	.18	.19	.19
Resinate, fused, bbls	.08 1/4	.08 1/4	.08 1/4	.08 1/4	.08 1/4
precip, bbls	.12	.12	.12	.11 1/2	.12 1/2
Manganese Borate, 30%, 200 lb bbls	.15	.16	.15	.16	.16
Chloride, 600 lb cks	.09	.12	.09	.12	.07
Dioxide, tech (peroxide),					
dr	.03 1/4	.06	.03 1/4	.06	.06
Mangrove 55%, 400 lb bbls	.04	.04	.04	.04	.04
Bark, African	28.00	29.00	28.00	30.00	26.00
Marble Flour, blk	12.00	13.00	12.00	13.00	12.00
Mercuric chloride	.71	.76	.71	.73	.93

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Orthonitrochlorobenzene Phloroglucinol

Prices

	Current Market	1935 Low High	1934 Low High
Orthonitrochlorobenzene, 1200 lb drs, wks .....	.28 .29	.28 .29	.28 .29
Orthonitrotoluene, 1000 lb drs, wks .....	.07 .10	.05½ .10	.05½ .06
Orthonitrophenol, 350 lb drs.....	.52 .80	.52 .80	.52 .80
Orthotoluidine, 350 lb bbls, 1-c-1 .....	.14½ .15	.14½ .15	.14 .15
Orthonitroparachlorphenol, tins .....	.70 .75	.70 .75	.70 .75
Osage Orange, cryst .....	.17 .25	.17 .25	.16 .25
51 deg liquid .....	.07 .07¾	.07 .07¾	.07 .07¾
Powd, 100 lb bgs .....	.14½ .15	.14½ .15	.14½ .15
Paraffin, retd, 200 lb cs slabs 122-127 deg M P .....	.04 .04¾	.04 .04¾	.04½ .04¾
128-132 deg M P .....	.05 .0515	.05 .0515	.04¾ .0515
133-137 deg M P .....	.0575 .06	.0575 .06	.05 .06
Para aldehyde, 110-55 gal drs.....	.16 .18	.16 .18	.16 .18
Aminoacetanilid, 100 lb kgs .....	... .85	... .85	.52 .85
Aminohydrochloride, 100 lb kgs	1.25 1.30	1.25 1.30	1.25 1.30
Aminophenol, 100 lb kgs lb. .....	... 1.05	... 1.05	.78 1.05
Chlorophenol, drs .....	.50 .65	.50 .65	.50 .65
Coumarone, 330 lb drs .....	... ..	... ..	... ..
Cymene, retd, 110 gal dr	2.25 2.50	2.25 2.50	2.25 2.50
Dichlorobenzene 150 lb bbls wks .....	.16 .20	.16 .20	.16 .20
Formaldehyde, bbls, wks lb. .....	.38 .39	.38 .39	... ..
Nitroacetanilid, 300 lb bbls.....	.45 .52	.45 .52	.45 .52
Nitroaniline, 300 lb bbls, wks .....	.48 .55	.48 .55	.48 .55
Nitrochlorobenzene, 1200 lb drs, wks .....	.23½ .24	.23½ .24	.23½ .24
Nitro-orthotoluidine, 300 lb bbls	2.75 2.85	2.75 2.85	2.75 2.85
Nitrophenol, 185 lb bbls lb. .....	.45 .50	.45 .50	.45 .50
Nitrosodimethylaniline, 120 lb bbls .....	.92 .94	.92 .94	.92 .94
Nitrotoluene, 350 lb bbls lb. .....	.35 .37	.35 .37	.35 .37
Phenylenediamine, 350 lb bbls	1.25 1.30	1.25 1.30	1.25 1.30
Para Tertiary amyl phenol, wks, drs .....	.32 .50	.32 .50	.32 .50
Toluenesulfonamide, 175 lb bbls .....	.70 .75	.70 .75	.70 .75
tk, wks .....	... .31	... .31	... ..
Toluenesulfonchloride, 410 lb bbls, wks .....	.20 .22	.20 .22	.20 .22
Toluidine, 350 lb bbls, wks.....	.56 .60	.56 .60	.56 .60
Paris Green, Arsenic Basis 100 lb kgs .....	... .24	... .24	.23 .24
250 lb kgs .....	... .22	... .22	... .22
Perchlorethylene, 50 gal drs.....	... .15	... .15	... .15
Persian Berry Ext. bbls .....	.55 Nom.	.55 Nom.	.55 Nom.
Pentane, normal, 28-38°C, group 3 tks .....	... .09	... .09	.09 .09
dr, group 3 .....	.10 .15	.10 .15	... ..
Petrolatum, dark amber, bbls.....	.02¾ .02¾	.02 .02¾	... ..
Light, bbls .....	.02¾ .03¾	.02½ .03¾	... ..
Medium, bbls .....	.02¾ .03¾	.02¾ .03¾	... ..
Dark green, bbls .....	.02¾ .02¾	.02¾ .02¾	... ..
White, lily, bbls .....	.05½ .06¾	.05¾ .06¾	... ..
White, snow, bbls .....	.06½ .07¾	.06¾ .07¾	... ..
Red, bbls .....	.02¾ .02¾	.02¾ .02¾	... ..
Petroleum Ether, 30-60°, group 3, tks .....	... .13	... .13	.11 .13
dr, group 3 .....	.15 .16	.15 .16	.15 .17
PETROLEUM SOLVENTS AND DILUENTS			
Cleaners naphthas, group 3, tk, wks .....	.06¾ .07¾	.06¾ .07¾	... ..
Bayonne, tk, wks .....	... .09	... .09	... ..
West Coast, tk, wks .....	... .15	... .15	... ..
Hydrogenated naphthas, frt allowed East, tk, wks .....	... .17½	... .17½	... ..
No. 2, tk, wks .....	... .22½	... .22½	... ..
No. 3, tk, wks .....	... .17½	... .17½	... ..
No. 4, tk, wks .....	... .22½	... .22½	... ..
Lacquer diluents, tk, wks Bayonne .....	.12 .12½	.12 .12½	.12 .12½
Group 3, tk, wks .....	.07¾ .08	.07¾ .08	.06¾ .08¾
Naphtha, V.M.P., East, tk, wks .....	... .09	... .09	.09 .09½
Group 3, tk, wks .....	.06¾ .07¾	.06¾ .07¾	.06¾ .07¾
Petroleum thinner, East, tk, wks .....	... .09	... .09	.09 .09
Group 3, tk, wks .....	.05¾ .06¾	.05¾ .06¾	.05¾ .06¾
Rubber Solvents, stand grd, East, tk, wks .....	... .09	... .09	.09 .09½
Group 3, tk, wks .....	.06¾ .07¾	.06¾ .07¾	.06¾ .06¾
Stoddard Solvent, East, tk, wks .....	... .09	... .09	.09 .09½
Group 3, tk, wks .....	.06¾ .07	.06¾ .07	.05¾ .07¾
Phenol, 250-100 lb drs .....	.14½ .15	.14½ .15	.14½ .15
Phenyl-Alpha-Naphthylamine, 100 lb kgs .....	... 1.35	... 1.35	... 1.35
Phenyl Chloride, drs .....	... .16	... .16	... .16
Phenylhydrazine Hydrochlor- ide	2.90 3.00	2.90 3.00	2.90 3.00
Phloroglucinol, tech, tins	15.00 16.50	15.00 16.50	15.00 16.50
CP, tins	20.00 22.00	20.00 22.00	20.00 22.00

Current

Phosphate Rock Rosin Oil

	Current Market	1935		1934	
		Low	High	Low	High
Phosphate Rock, f.o.b. mines					
Florida Pebble, 68% basis	ton	3.40	3.25	3.40	2.85
70% basis	ton	3.90	3.90	3.35	3.90
72% basis	ton	4.40	4.40	3.85	4.40
75-74% basis	ton	5.40	5.40	4.90	5.40
75% basis	ton	5.50	5.50	5.05	5.50
77-80% basis	ton	6.50	6.50	5.90	6.50
Tennessee, 72% basis	ton	4.75	4.75	4.75	5.00
Phosphorous Oxychloride 175					
lb cyl	lb	.16	.20	.16	.20
Red, 110 lb cases	lb	.44	.45	.44	.45
Yellow, 110 lb cs, wks	lb	.28	.33	.28	.33
Sesquisulfide, 100 lb cs	lb	.38	.44	.38	.44
Trichloride, cyl	lb	.16	.20	.16	.20
Phthalic Anhydride, 100 lb					
drs, wks	lb	.14½	.15½	.14½	.15½
Pine Oil, 55 gal drs or bbls					
Destructive dist	lb	.44	.46	.44	.50
Steam dist wat wh bbls gal	gal	.64	.65	.64	.65
tk	gal	.59	.59	.59	.59
Straw color, bbls	gal	.59	.59	.59	.59
tk	gal	.54	.54	.54	.54
Pitch Hardwood, wks	ton	15.00	15.00	20.00	20.00
Burgundy, dom, bbls, wks					
Imported	lb	.11	.13	.11	.13
Coal tar, bbls, wks	ton	19.00	19.00	19.00	19.00
Petroleum, see Asphaltum in Cums' Section.					
Pine, bbls	bbl	3.75	4.25	3.75	4.25
Stearin, drs	lb	.03	.04½	.03	.04½
Platinum, retd	oz	35.00	36.00	35.00	38.00

POTASH

Potash, Caustic, wks, sol.	lb	.06¼	.06¼	.06¼	.06¼	.07¾
flake	lb	.07	.07¾	.07	.07¾	.08¾
Liquid tks	lb	.02¾	.02¾	.02¾	.02¾	.03¾
Potash Salts, Rough Kainit						
14% basis	ton	8.50	8.50	8.50	8.50	9.70
Manure Salts, imported						
20% basis, blk	ton	11.00	8.60	11.00	8.60	12.00
30% basis, blk	ton	14.40	12.90	14.40	12.90	19.15
Domestic, cif ports, blk unit		.43	.43	.43	.43	.43
Potassium Acetate	lb	.26	.28	.26	.28	.28
Potassium Muriate, 80% basis						
bgs	ton	22.50	22.00	22.50	22.00	37.15
Dom, blk	unit	.45	.40	.45	.40	.45
Pot & Mag Sulfate, 48% basis						
bgs	ton	22.25	22.50	19.50	22.50	25.00
Potassium Sulfate, 90% basis						
bgs	ton	33.75	33.75	35.00	35.00	42.15
Potassium Bicarbonate, USP						
320 lb bbls	lb	.07¼	.09	.07¼	.09	.09
Bichromate Crystals, 725 lb						
cks	lb	.08¼	.08¼	.08¼	.08¼	.08¼
Binoxalate, 300 lb bbls	lb	.22	.23	.22	.23	.23
Bisulfate, 100 lb kgs	lb	.35	.36	.35	.36	.36
Carbonate, 80-85% calc 800						
lb cks	lb	.07¼	.07¼	.07¼	.07¼	.07¼
liquid, tks	lb	.03¾	.03¾	.03¾	.03¾	.03¾
drs, wks	lb	.03¾	.03¾	.03¾	.03¾	.03¾
Chlorate crys, powd, 112 lb						
kgs, wks	lb	.09¾	.09¾	.09¾	.08¾	.09¾
gran, kgs	lb	.12	.13	.12	.13	.13
powd, kgs	lb	.08¾	.09¾	.08¾	.09¾	.09¾
Chloride, crys, bbls	lb	.04	.04¼	.04	.04¼	.04¼
Chromate, kgs	lb	.23	.28	.23	.28	.28
Cyanide, 110 lb cases	lb	.55	.57½	.55	.57½	.60
Iodide, 75 lb bbls	lb	1.25	1.25	1.40	1.40	2.70
Metabisulfite, 300 lb bbls	lb	.15	.15	.15	.10½	.15
Oxalate, bbls	lb	.16	.24	.16	.24	.24
Perchlorate, cks, wks	lb	.09	.11	.09	.11	.11
Permanganate, USP, crys,						
500 & 1000 lb drs, wks lb	lb	.18½	.19½	.18½	.19½	.19½
Prussiate, red, 112 lb kgs	lb	.35	.38½	.35	.38½	.39
Yellow, 500 lb casks	lb	.18	.19	.18	.19	.19
Tartrate Neut, 100 lb kgs	lb	.21	.21	.21	.21	.21
Titanium Oxalate, 200 lb						
bbls	lb	.32	.35	.32	.35	.35
Propane, group 3, tks		.07	.07	.07	.07	.07
Pumice Stone, lump bgs	lb	.04¼	.06	.04¼	.06	.06
250 lb bbls	lb	.05	.07	.05	.07	.07
Powd, 350 lb bgs	lb	.02½	.03	.02½	.03	.03
Putty, coml, tubs	100 lb	2.75	2.75	2.75	2.25	2.75
Linseed Oil, kgs	100 lb	4.50	4.50	4.50	4.00	4.50
Pyridine, 50 gal drs	gal	1.25	1.25	1.25	1.25	1.25
Pyrites, Spanish cif Atlantic ports, blk	unit	.12	.13	.12	.13	.13
Pyrocatechin, CP, drs, tins						
Quebracho, 35% liq tks	lb	.02¾	.02¾	.02¾	.02¾	.02¾
450 lb bbls, c-l	lb	.03¾	.03¾	.03¾	.02¾	.03¾
Solid, 63%, 100 lb bales						
cif	lb	.03¾	.03¾	.03¾	.02¾	.03¾
Clarified, 64%, bales	lb	.03¾	.03¾	.03¾	.03	.03¾
Quercitron, 51 deg liq, 450 lb						
bbls	lb	.06	.06½	.06	.05½	.06½
Solid, 100 lb boxes	lb	.10	.12	.10	.09½	.13
R Salt, 250 lb bbls, wks	lb	.44	.45	.44	.45	.45
Resorcinol tech, cans	lb	.75	.80	.75	.80	.80
Rochelle Salt, cryst	lb	.14	.14½	.14	.15	.16
Powd, bbls	lb	.13	.13½	.13	.13½	.13
Rosin Oil, bbls, first run gal						
Second run	gal	.45	.43	.45	.48	.48
Third run, drs	gal	.53	.50	.60	.60	.60



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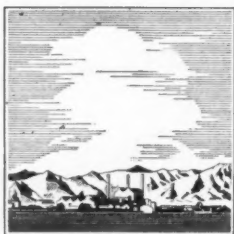
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Tin Crystals Zinc Stearate

Prices

	Current Market	1935 Low	1935 High	1934 Low	1934 High
Tin, crystals, 500 lb bbls, wks	.38½	.39	.36	.39½	.30
Metal, NY	.5270	.456	.52	.50½	.55½
Oxide, 300 lb bbls, wks lb.	.54	.56	.51	.58	.55
Tetrachloride, 100 lb drs, wks	.26½	.24¾	.26½	.25½	.28½
Titanium Dioxide, 300 lb bbls	.17½	.19¼	.17½	.19¼	.17½
Barium Pigment, bbls	.06¼	.06¼	.06¼	.06¼	.06¼
Calcium Pigment, bbls	.06¼	.06¼	.06¼	.06¼	.06¼
Toluol, 110 gal drs, wks gal.	.35	.35	.35	.35	.35
8000 gal tks, frt allowed gal.	.30	.30	.30	.30	.30
Toluidine, mixed, 900 lb drs, wks	.27	.28	.27	.28	.27
Toner Lithol, red, bbls	.75	.80	.75	.80	.75
Para, red, bbls	.75	.75	.75	.75	.80
Toluidine, bgs	1.35	1.35	1.35	1.35	1.35
Triacetin, 50 gal drs, wks lb.	.32	.36	.32	.36	.32
Triamyl Borate, drs, wks lb.	.40	.40	.40	.40	.40
Triamylamine, drs, wks	1.25	1.25	1.25	1.00	1.25
Trichlorethylene, 50 gal drs lb.	.09½	.10	.09½	.10	.09½
Triethanolamine, 50 gal drs wks	.26	.30	.26	.38	.35
Tricresyl Phosphate, drs	.21	.25	.21	.23	.19
Triphenyl Guanidine	.58	.60	.58	.60	.58
Tripoli, airfloated, bgs, wks	27.50	30.00	27.50	30.00	27.50
Tungsten, Wolframite per unit	15.00	15.25	15.00	15.25	12.00
Turpentine (Spirits), c-l, NY dock, bbls	.47¾	.47¾	.55½	.46¼	.63½
Savannah, bbls	.42¾	.42¾	.50¼	.41¼	.58½
Jacksonville, bbls	.42¾	.42¾	.50¼	.41¼	.58½
Wood Steam dist, bbls, c-l, NY	.47	.45	.49	.41	.61
Urea, pure, 112 lb cases	.15½	.17	.15½	.17	.15
Fert grade, bgs c.i.f.	100.00	120.00	100.00	120.00	90.00
c.i.f. S.A. points	100.00	120.00	100.00	120.00	90.00
Urea Ammonia liq 55% NH ₃ , tks	.96	.96	.96	.96	.96
Valonia beard, 42%, tannin bgs	41.50	40.00	43.50	39.00	48.00
Cups, 32% tannin, bgs	27.50	26.00	28.50	23.00	32.50
Mixture, bark, bgs	32.00	32.00	32.00	32.00	32.00
Vermillion, English, kgs	1.49	1.62	1.50	1.70	1.41
Vinyl Chloride, 16 lb cyl	1.00	1.00	1.00	1.00	1.00
Wattle Bark, bgs	29.00	30.00	29.00	32.00	29.50
Extract, 60° tks, bbls	.03¾	.03¾	.03¾	.03¾	.03¾

WAXES

Wax, Bayberry, bgs	.22	.23	.22	.23	.25	.30
Bees, bleached, white 500 lb slabs, cases	.33½	.34	.33½	.34	.32	.37
Yellow, African, bgs	.22	.23	.21	.23	.16	.22
Brazilian, bgs	.21½	.23½	.21½	.25	...	...
Chilean, bgs	.21½	.23½	.21½	.24½	...	...
Refined, 500 lb slabs, cases	.27½	.28	.27½	.28	.21	.29
Candelilla, bgs	.12	.13½	.10	.13½	.10¼	.14½
Carnauba, No. 1, yellow, bgs	.41½	.44	.35	.44	.30	.40
No. 2, yellow, bgs	.41	.44	.34	.44	.34	.41
No. 2, N. C., bgs	.36	.38	.26½	.38	.20	.29
No. 3, Chalky, bgs	.32½	.36	.21	.36	...	...
No. 3, N. C., bgs	.34	.40	.22½	.40	.16¼	.25
Ceresin, white, imp, bgs lb.	.43	.45	.43	.45	...	...
Domestic, bgs	.36	.38	.36	.38	...	...
Japan, 224 lb cases	.07¼	.07½	.06	.07¼	.06	.07½
Montan, crude, bgs	.10¾	.11¾	.10½	.11¾	.10	.11
Paraffin, see Paraffin Wax	...	...	...	...	...	...
Spermaceti, blocks, cases lb.	.22	.24	.19	.24	.18	.20
Cakes, cases	.23	.25	.20	.25	.19	.21
Whiting, prec 200 lb bgs, c-l, wks	15.00	12.00	15.00	...	...	...
Alba, bgs, c-l, NY	15.00	15.00	15.00	...	15.00	...
Gliders, bgs, c-l, NY	15.00	15.00	15.00	...	...	...
Wood Flour, c-l, bgs	18.00	30.00	18.00	30.00	18.00	30.00
Xylol, frt allowed, East 10° tks, wks	.31	.33	.27	.33	.27	.29
Coml, tks, wks, frt allowed	.30	.30	.26	.30	...	.26
Xylidine, mixed crude, drs lb.	.36	.37	.36	.37	.36	.37
Zinc, Carbonate tech, bbls, NY	.09½	.11	.09½	.11	.09½	.11
Chloride fused, 600 lb drs, wks	.04½	.05¾	.04½	.05¾	.04½	.05¾
Gran, 500 lb bbls, wks	.05	.05¾	.05	.05¾	.05½	.06
Soln 50% tks, wks	2.00	2.00	2.00	2.00	2.00	2.00
Cyanide, 100 lb drs	.36	.41	.36	.41	.36	.41
Zinc Dust, 500 lb bbls, c-l, delv	.064	.057	.064	.0567½	.071	...
Metal, high grade slabs, c-l, NY	4.77½	4.05	4.77½	4.05	4.75	...
E. St. Louis	4.40	3.70	4.40	3.70	4.46	...
Oxide, Amer, bgs, wks	.05¾	.06¼	.05¾	.06¼	.05¾	.06¼
French, 300 lb bbls, wks	.06¼	.10½	.06¼	.10½	.05¾	.11½
Palmitate, bbls	.22	.23	.21	.23	.20	.22
Perborate, 100 lb drs	1.25	1.25	1.25	1.25	1.25	1.25
Peroxide, 100 lb drs	1.25	1.25	1.25	1.25	1.25	1.25
Resinate, fused, dark, bbls lb.	.05¾	.06½	.05¾	.06½	.05¾	.06½
Stearate, 50 lb bbls	.19	.22	.18	.22	.18	.21

Current

Zinc Sulfate Oil, Whale

	Current Market		1935		1934	
	Low	High	Low	High	Low	High
Zinc Sulfate, crys, 400 lb bbl, wks .....	.028	.033	.028	.033	.02 3/4	.033
Flake, bbls .....	.035	.032	.035	.032	...	...
Sulfide, 500 lb bbls, delv lb. ....	.10 3/4	.11 3/4	.10 3/4	.11 3/4	.10 3/4	.13 1/4
bgs, delv .....	.10 1/2	.11 1/2	.10 1/2	.11 1/2	...	...
Sulfocarbonate, 100 lb kgs .....	.24	.25	.24	.25	.21	.25
Zirconium Oxide, Nat kgs lb. ....	.02 1/2	.03	.02 1/2	.03	.02 1/2	.03
Pure, kgs .....	.45	.50	.45	.50	.45	.50
Semi-refined, kgs .....	.08	.10	.08	.10	.08	.10

Oils and Fats

Castor, No. 3, 400 lb bbls. lb. ....	.09 3/4	.10 1/4	.09 3/4	.10 1/4	.09 3/4	.10 1/4
Blown, 400 lb bbls .....	.11 1/2	.12 1/4	.11 1/2	.12	.11 1/2	.12 3/4
China Wood, bbls spot NY lb. ....	.156	.16	.094	.18	.07 1/2	.099
Tks, spot NY .....	...	.15	.088	.15 1/2	.07 1/4	.094
Coast, tks .....	...	.14 7/8	.087	.14 7/8	.06 7/8	.094
Coconut, edible, bbls NY lb. ....	.09 3/8	.10 1/8	.04	.12	.04 3/4	.10 3/4
Manila, tks, NY .....	...	.03 3/4	.03 3/4	.06 1/4	.02 5/8	.03 3/4
Tks, Pacific Coast .....	.03 3/8	.03 1/2	.03 1/2	.06	.02 1/4	.02 1/2
Cod, Newfoundland, 50 gal bbls .....	.35	.36	.36	.38	.34	.40
Copra, bgs, NY .....	...	.0210	.02	.038	.0012	.021
Corn, crude, tks, mills .....	.08 3/4	.09	.08 3/4	.11	.03 1/2	.09 1/4
Refd, 375 lb bbls, NY .....	.11 1/2	.11 3/4	.11 1/2	.14	.05 3/4	.12
Cottonseed, see Oils and Fats News Section.						
Degras, American, 50 gal bbls, NY .....	.05 1/4	.06 3/4	.04 1/2	.06	.02 3/4	.05 1/2
English, brown, bbls, NY lb. ....	.04 3/4	.05 1/2	.04 3/4	.06 1/2	.03 3/4	.05 3/8
Greases, Yellow .....	.05 1/4	.05 1/2	.05	.06 3/8	.02 3/4	.05 1/8
White, choice bbls, NY lb. ....	.05 3/4	.07	.05 1/4	.08 1/2	.02 3/4	.05 3/8
Herring, Coast, tks .....	.30	Nom.	.23	.32 1/2	.15	.23
Lard Oil, edible, prime .....	...	.16 3/4	.09 3/4	.17	...	.09 3/4
Extra, bbls .....	...	.11 3/4	.08 1/2	.11 3/4	.07	.08 1/2
Extra, No. 1, bbls .....	...	.10 1/2	.08 1/4	.11	.06 3/8	.08 1/4
Linseed, Raw, less than 5 bbl lots .....	...	.101	.095	.105	.101	.105
bbls, c-l spot .....	...	.093	.087	.097	.087	.101
Tks .....	...	.087	.081	.091	.081	.095
Menhaden, tks, Baltimore gal. ....	.28	.30	.25	.35	.15	.25
Refined, alkali, drs .....	.071	.075	.061	.077	.052	.069
Tks .....	...	.065	.055	.069	.046	.061
Light pressed, drs .....	.065	.069	.055	.071	.046	.057
Tks .....	...	.059	.049	.063	.04	.05
Neatsfoot, CT, 20° bbls, NY .....	...	.16 1/4	.16 1/4	.16 1/2	...	.16 1/2
Extra, bbls, NY .....	...	.10 3/4	.08 1/2	.11 1/4	.07	.08 1/2
Pure, bbls, NY .....	...	.11 3/4	.11 3/4	.12	.12	.13
Oleo, No. 1, bbls, NY .....	...	.11 3/4	.10 3/4	.14 1/2	.06	.11 1/2
No. 2, bbls, NY .....	...	.11 1/2	.10	.13 3/4	.05 3/8	.11 1/4
Olive, denat, bbls, NY .....	...	.85	.82	.95	.76	.90
Edible, bbls, NY	1.65	1.80	1.55	1.80	1.55	1.90
Foots, bbls, NY .....	.08	.08 3/4	.07 1/8	.08 3/4	.06 1/2	.07 1/2
Oleic, bbls .....	.13	.13 3/4	...	...	...	...
Palm, Kernel, bulk .....	.04	Nom.	...	...	...	...
Niger, cks .....	.04	.04 1/2	.034	.05 3/4	.031	.03 3/4
Sumatra, tks .....	...	.04 1/4	...	...	...	...
Peanut, crude, bbls, NY .....	...	.10 1/2	...	...	...	...
Tks, f.o.b. mill .....	...	.08 3/4	.08 3/4	.10 3/4	.06 1/2	.10 3/4
Refined, bbls, NY .....	...	.13	.12 1/2	.14	.07 1/2	.12 1/2
Perilla, drs, NY .....	.07 1/4	.07 1/2	.07 1/4	.08 3/4	.08 1/4	.09 3/8
Tks, Coast .....	.068	.07	.068	.08 1/4	.07 1/2	.09
Pine, see Pine Oil, Chemical Section.						
Rapeseed, blown, bbls, NY lb. ....	.08	.082	.08	.09	.08	.082
Denatured, drs, NY .....	.42	.43	.40	.53	.37	.44
Red, Distilled, bbls .....	.09 3/8	.10 1/8	.07 3/8	.10 1/8	.06 7/8	.08 3/8
Tks .....	...	.08 3/4	.06 1/2	.08 1/4	.06	.06 1/2
Salmon, Coast, 8000 gal tks .....	.32 1/2	Nom.	.25	.35	.15	.21
Sardine, Pac Coast, tks .....	...	.30	.24 1/2	.37	.13	.25
Refined alkali, drs .....	.071	.075	.065	.079	...	...
Tks .....	...	.065	.06	.069	...	...
Light pressed, drs .....	.065	.069	.055	.073	...	...
Tks .....	...	.059	.049	.063	...	...
Sesame, yellow, dom .....	.12 1/2	.13	.12 1/4	.13 3/4	.07 1/2	.13 1/4
White, dos .....	.12 1/2	.13	.12 3/4	.13 3/4	.08	.13 1/4
Soy Bean, crude						
Dom, tks, f.o.b. mills .....	...	.093	.08	.10	.06	.08
Crude, drs, NY .....	.091	.095	.086	.11	.066	.09
Refd, bbls, NY .....	.096	.105	.091	.115	.071	.102
Tks .....	.09	.095	.08	.10 1/2	...	...
Sperm, 38° CT, bleached, bbls NY .....	.099	.101	.099	.101	.106	.11
45° CT, bleached, bbls, NY .....	.092	.094	.092	.094	.099	.103
Stearic Acid, double pressed dist bgs .....	.10 3/4	.11 3/4	.10	.12 1/4	.09	.11
Double pressed saponified bgs .....	.11 1/4	.12 1/4	.09	.12 3/4	.09	.10
Triple pressed dist bgs .....	.13 3/4	.14 3/4	.12 3/4	.15 1/4	.11 3/4	.13 3/4
Stearine, Oleo, bbls .....	.08 3/4	.09	.09 1/4	.12 1/2	.05	.10 3/8
Tallow City, extra loose .....	...	.05 7/8	.05 3/8	.07	.07 3/8	.05 3/8
Edible, tierces .....	...	.07 3/4	.07 1/2	.08 1/2	.04 3/4	.07 1/4
Acidless, tks, NY .....	...	.09 3/4	.07 1/2	.10 3/4	.06	.07 1/2
Turkey Red, single, bbls .....	.07 1/2	.08	.07 1/2	.08	.07 1/2	...
Double, bbls .....	.12 1/2	.13	.12 1/2	.13	.12 1/2	.13
Whale:						
Winter bleach, bbls, NY lb.077	.079	.07	.083072
Refined, nat, bbls, NY073	.075	.064	.081	.064	.07

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“We”—Editorially Speaking

A good friend—but misguided, we think—implores us to desist in publishing letters in “The Reader Writes—” department adversely critical of our pages and what we print on them. After nearly smothering us with compliments, he adds —“You express, so aptly, the thoughts of the real leaders of the industry, that most of the criticisms of your editorials are from men who are either prejudiced or ignorant of conditions as they exist today.” Maybe so: maybe not! But probably not, and so with very sincere thanks for his concern over our reputation we shall continue to give equal publicity to the brickbats and the bouquets which the postman brings to our desk. It would be neither good sense nor good sportsmanship to do otherwise. We do not expect everyone to agree with us, and we cannot hope to please all if we voice our honest convictions vigorously. If we feel criticism is merited and will be helpful, we do not hesitate to criticize. We hand it out: we should be able to take it—on the chin, if necessary.

♦♦♦♦

Lewis W. Douglas, vice-president and director of the American Cyanamid, son-in-law of Fred Zinsser, erstwhile Director of the Budget, and Public Enemy Number 1 of the New Deal, has written a book—heaven pity him!—entitled “The Liberal Tradition.” If you haven’t read it, you’ve missed a treat.

♦♦♦♦

There is good Biblical authority for seven lean years, so we ought to be “out of the trenches” by 1937.

♦♦♦♦

There is only one department store in New York City that advertises “We refuse to be undersold”—but there are 179 distributors of less carlot alkali in the Metropolitan district.

♦♦♦♦

If you can remember when the only governmental abbreviations a man had to know were U. S. A., U. S. N., and R. F. D., you are an old-timer, but at least you may remember when the function of government was to govern not to run the whole darned show.

♦♦♦♦

Only six years ago, the post-war boom was at its peak, and can you believe it... R. & H. was a separate company...

Monsanto directors voted a 2 for 1 stock split and Dow a 4 to 1...Cyanamid and Kalbfleisch issued a joint statement, that they would operate as separate organizations, with no change in management... Our leading article was a symposium on Mergers Pro and Con...du Pont reported a net of \$3.84 for the first six months...Allied was selling at 312 and Commercial Solvents at 492...Synthetic methanol was quoted at 63c and C. D. alcohol 51c...And most remarkable of all, in comparison with “Silent Cal”, Herbert Hoover was accused of being a chatterbox...Haven’t times changed?

♦♦♦♦

Like fertilizers, paints are fast becoming highly specialized chemical products, and James O. Hasson, Head of the Industrial Paint Division, Sherwin-Williams Company, in our next issue summarizes from first hand, expert experience recent trends in the transformation taking place in the formulation of coatings.

♦♦♦♦

Did you know

That L. V. Redman, Bakelite vice president, expert plastologist, and ex-

president of the American Chemical Society, began his career as a Methodist minister?

That Jasper Crane, first settler and magistrate of Branford, is one of the worthies of early Connecticut whose name is being celebrated during the Tercentenary of that state this summer?

That the Secretary of the American Fertilizer Association is a prominent member of a Farmers Cooperative in Maryland?

♦♦♦♦

Coming soon in a series of life stories of our early chemical industrialists—George Rosengarten, founder of that illustrious chemical family; Martin Dennis, pioneer in chemical tanstuffs; George Lewis, the father of Penn Salt.

♦♦♦♦

Friends of Billie Haynes who have been wondering what on earth he has been doing this summer on a farm near Stonington, Connecticut, will doubtless be relieved to learn that on July 29, that ancient town voted all incumbents out of office and went Republican for the first time in forty years.

♦♦♦♦

Speaking of Connecticut, that state, like the chemical industry, is this year celebrating the three hundredth anniversary of its establishment by John Winthrop, Jr., and our article on him in our Tercentenary Issue has been reprinted, in whole or in part, by a number of newspapers in the Nutmeg State. The double-barrelled coincident rather tempers our vainglory. No alert editor could miss that good chance.

♦♦♦♦

But we are really rather set up by the stack of press clippings that special number has collected outside of Connecticut. They range from “Nature” in London to the “North China News”.

♦♦♦♦

We want lots of “candid camera shots” for our “Chemical News Reel.” Send us your good snap shots—of yourself or your friends among the great and the near-great in the chemical fold.

Fifteen Years Ago

From our issues of August, 1920

French chemist reports commercial process for synthetic camphor manufacture.

Heading of feature article August 11th issue, *Drug & Chemical Markets*, “What is the Outlook for Fall Business?” with comments by John A. Chew, Manager, Warner Chemical Co., Hugo L. Kleinhans, President, Charles Cooper, and others.

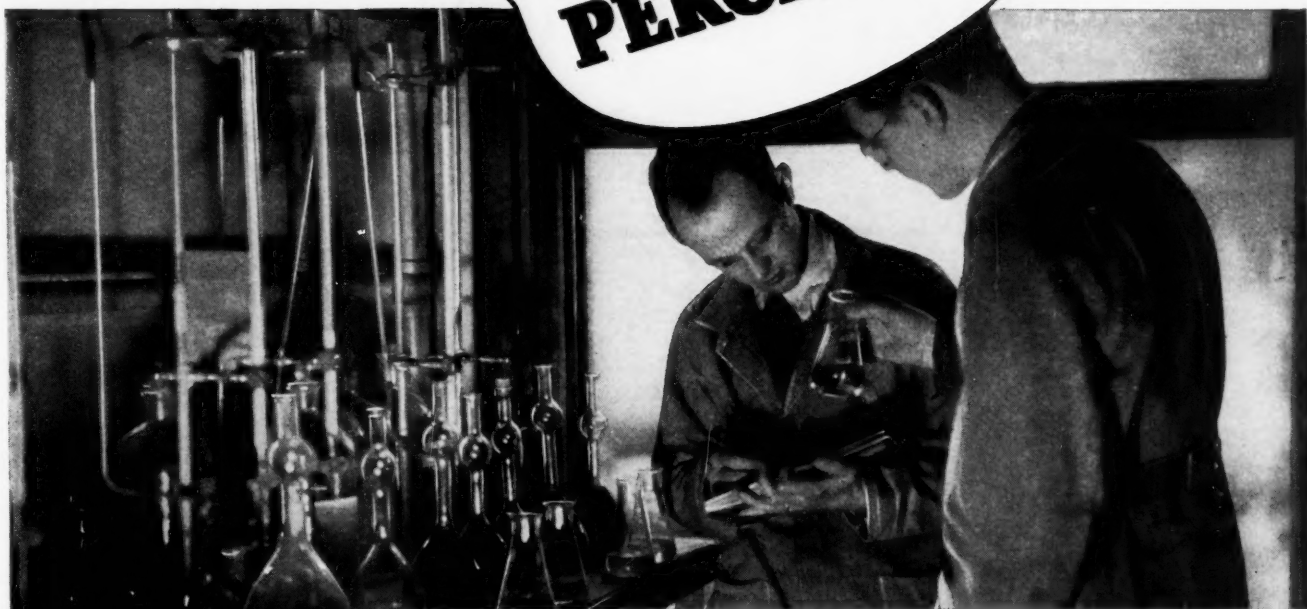
Southern farmers are reported demanding sulfur in mixed fertilizers.

Cincinnati Chemical Works incorporated.

Mechling Bros. Mfg. Co. breaks ground for new silicate of soda plant at Wellington Station, Mass.

Newport Chemical Works adding to plant in Passaic, N. J.

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